



issa

INTERNATIONAL SOCIAL SECURITY ASSOCIATION



World Social Security Forum

30th ISSA General Assembly

Cape Town, 29 November – 4 December 2010

Technical Commission on Information and Communication Technology

Summary of findings 2008-2010

This report describes the main findings of the projects carried out by the Technical Commission during the triennium 2008-2010. Original project reports and additional information are available on the ISSA Extranet.



Project *ICT as a strategic management tool*

1. Introduction

The use of Information and Communication Technologies (ICT) in social security organizations represents a global trend. As these organizations turn to ICT, the goal is the development of solutions that enable them to provide high-quality services, satisfy stakeholders and improve efficiency of key processes. Moreover, the challenges resulting from social security's ongoing evolution, e.g. coverage extension and the development of safety nets in times of crisis, require a more intensive and sophisticated use of technology in the social security domain.

The use of ICT is widespread enough to illustrate the parameters that institutions should consider when planning for their own administrative settings and to reveal trends. Historically, the social security sector has been pioneer in using new technologies, particularly when applied to large-scale and complex systems. The report that follows presents the main findings and conclusions of the three-year project: *ICT as a strategic management tool* in social security organizations.

The application of ICT has a strategic impact in social security, not only as it enhances the effectiveness of processes and services, but also because it can transform them. Such impact can be characterized through different perspectives. From a support perspective, ICT has played a fundamental role in social security organizations by supporting the implementation of operations, enabling large-scale information management, and providing the means to communicate with citizens and other organizations. As regards the perspective of global management, ICT has enabled the improvement in the quality and effectiveness of key processes such as service delivery and management decision making, not only through the use of new technologies but also through the application of business intelligence and novel management methodologies. Considering the transformation perspective, the intensive application of ICT is enabling the evolution of social security processes, the implementation of new approaches to service delivery and operations, and therefore the overall transformation of organizations and their relationships.

These topics were addressed throughout the project, particularly in the Technical Seminars in Baku¹ and Beirut,² and in the International Conference of Seville,³ all of which enabled participants to exchange experiences and address the key issues. The detailed documentation from each of these events can be found in the reference section at the end of this report.

The project has identified three areas in which ICT plays a key role in improving social security services:

¹ Technical Seminar on ICT Project Management. Baku, Azerbaijan. October 2008. URL: <http://www.issa.int/News-Events/Events/Technical-Seminar-on-ICT-Project-Management>.

² Technical Seminar on ICT as a strategic management tool for enhancing the effectiveness of service delivery. Beirut, Lebanon, June 2010. URL: <http://www.issa.int/News-Events/Events/Technical-Seminar-on-Information-and-Communication-Technology-in-Social-Security>.

³ 12th International Conference on Information and Communication Technology in Social Security. Seville, Spain. June 2009. URL: <http://www.issa.int/News-Events/Events/12th-International-Conference-on-Information-and-Communication-Technology-in-Social-Security>.

1. **Citizen interaction and service quality.** The quality of the interaction between institutions and citizens constitutes a key aspect for improving the effectiveness of service delivery. Addressing such interaction involves using different mechanisms which must adequately respond to the needs of target population groups and the country's unique characteristics.
2. **Scalable ICT platforms.** To optimize performance, flexibility, scalability, cost and longevity, the selection of the technology platform is critical. Using the correct platform has enabled organizations to deliver results more rapidly, and scale up quickly as momentum builds.
3. **Decision support systems and business intelligence.** The decision making processes must be supported by accurate information and the appropriate tools to enable interactive exploration and analysis.

The issues presented in this report are based on a review of projects developed by the International Social Security Association (ISSA) member institutions. Detailed descriptions of each project can be found in the ISSA's Technical Reports on Citizen Services, Scalable Service Platforms and Business Intelligence⁴, which are published in the ISSANET site of the ISSA Technical Commission on Information and Communication.

The report is organized as follows. Section 2 presents main findings and conclusions on Citizen Interaction and Services, Section 3 presents similar analysis concerning Scalable Service Platforms and Section 4 presents the same for Decision Support Systems. Finally, Section 5 summarizes the findings and presents the main recommendations on the topics addressed.

2. Interacting with citizens: Customer service

The effectiveness of a citizen-centred social security strategy is strongly related to the manner in which citizens interact with these services and, consequently, the quality of such interaction.

In recent years, a range of initiatives has been developed to improve customer services. Recent trends in the use of Web-based applications and mobile phones have enriched the panorama of options to perform user interaction, strengthening the application of multichannel schemes. Other approaches have included the segmentation of the customer universe, building situation-oriented interaction points to offer direct interfaces to the services and applying advanced Web technologies (Web 2.0).

Analysis of current experiences shows that electronic services (e-Services) constitute the mainstream approach that social security organizations have been implementing to varying degrees based on their needs and capabilities. The premise of an e-Services strategy within social security organizations is the provision of virtual service centres where clients can easily and quickly complete their transactions electronically without manual intervention. Moreover, in order to facilitate access to e-Service and avoid the fragmentation of service sites, institutions have preferred the implementation of "one-stop" Web portals, which provide single points to access services. This approach has been strengthened by technologies which enable service composition and interoperability.

⁴ Citizen Services, Customer Interaction and e-Services in perspective. Technical report of the ISSA ICT Technical Commission. 2010. Scalable Service Platforms. Technical report of the ISSA ICT Technical Commission. 2010. Business Intelligence and Decision Support Systems. Technical report of the ISSA ICT Technical Commission. 2010.

Social security organizations that have adopted e-Service have reported valuable outcomes. E-Services have resulted in a wider range of benefits such as availability at all times, accessibility from anywhere, and personalized and timely services. In addition to client benefits, social security organizations have been able to recognize tremendous gains from e-Services in terms of efficiency in transaction time, effective use of resources, improved customer service, considerable financial gains and more timely and accurate data. By implementing e-Services, many organizations noted a decrease in average transaction time, impressive savings in different areas and an increase in customer satisfaction. However, concerning these implementations it is important to address the resistance to change generated by such initiatives and to take into account all the involved aspects: organizational change by altering processes, human change by training and seminars and cultural change by embracing the transformation.

As a consequence, the development of e-Services can be considered a mandatory strategic goal for social security organizations as it enables them to improve their operational efficiency and acquire technical capacities by introducing technologies necessary to compete in an "information society".

Although Web technologies are currently the preferred approach for implementing citizen services, institutions have to take into account access limitations of specific population groups, and the resources and technical background required to implement effective Web-based systems. However, in order to take into account specific needs of citizens, social security institutions have implemented other communication mechanisms, such as the well-known call centres and experimental video-based systems.

The analysis of the good practices introduced by social security organizations show two approaches regarding the use of e-Services. They are used either for improving the quality of existing services or as a mechanism for transforming the way that these organizations think of, and deliver, services to the public.

The *improved services approach* is primarily one of incrementally building individual services in a somewhat ad hoc manner, although the approach may be guided by explicitly identified priorities. While the primary gain in the short-term is one of organizational efficiency, the overall benefit to the organizations' clients under this approach will be realized once a mass of core services is available online.

The *transformational approach*, on the other hand, looks at the provision of citizen-centric services. This inverts the business value proposition from one that is supply-driven to one that is demand-driven. It looks at providing the online services the public needs or desires, as opposed to the online services that organizations wish to provide for their clients. This citizen-centric conceptual framework modifies both decisions about what is valuable to provide, and how e-Services should be provided. It requires the front-end of organizational services to be collaborative and single-layered, as opposed to disparate systems. These e-Services largely complement other channels of delivery and are designed to provide clients with greater convenience and more efficient service.

It is evident in reviewing practices within the ISSA member organizations that the use of open, industry standard architecture allowed them to deploy and scale e-Services faster than proprietary systems. These solutions addressed the need to streamline processes by connecting disparate information systems and improving access to public services for constituents and businesses. Using standards also facilitate inter-agency communication and the implementation of joint services. Equally, top management support and commitment are key success factors when implementing citizen services, as is awareness to other stakeholders needs. To be effective, employees and clients need to know about new services and the value

of these services. The last lesson is that simplicity of use of e-Services would aid its rapid and widespread adoption.

In turn, implementing citizen services requires technical and organizational capacities. In spite of the advances in ICT application, a number of social security institutions need technical support to carry out these kinds of projects.

The main future trends in citizen services are based on supporting interaction from mobile phones, providing Web 2.0 interfaces and using Social Web environments. These three trends, although already widely used, particularly among the younger population, are still very limited in the context of social security. Consequently, these approaches should be further analyzed and developed. These topics were addressed in the Technical Seminar held in Beirut in June 2010.

The report on Citizen Services presents a more detailed description of good practices and experiences on citizen services and interaction, which were used as a basis for this present report. The overall experiences and good practices are accessible through the ISSA Website, <http://www-issanet.issa.int/>.

3. Scalable service platforms

Social security organizations have to promote the quality of citizen services by ensuring their availability and performance. It is also necessary to perform agile evolution and extension of customer services. On the other hand, due to the crisis scenario, social security organizations must reduce the expenses and are challenged to develop more cost effective services, which may arise on more elaborated systems.

ICT platforms play a key role in addressing these challenges. There are three main aspects concerning ICT platforms: (i) server infrastructure, composed of hardware and the operating system; (ii) backend processes and services, supported by the execution environment and business applications; and (iii) methodologies for managing the ICT infrastructure and services.

In order to accomplish the above-mentioned objectives, the ICT platform must be adequately prepared. For instance, backend processes must be able to handle peaks of requests and must be flexible and agile enough to add new processes and services. The server infrastructure must ensure an adequate availability and performance and be easy to configure when adding new workload or recovering from failures. It is also necessary to manage the infrastructure and the business continuity rigorously. In a nutshell, the ICT platform must be scalable.

The main approaches to meet the scalability demand for the backend processes and services layer are designing systems based on Service Orientation Architecture (SOA) and implementing them by using enterprise platform middleware. The SOA approach, which establishes that processes and business applications are modelled as reusable services, contributes to the flexibility and agile evolution of the overall system. In turn, modern enterprise platform middleware provides the means to integrate application systems within a local network as well as through Internet. This software category includes products like application servers and Enterprise Service Bus (ESB), which enable the implementation and execution of processes and services. Moreover, ESBs provide adequate tools to implement loosely-coupled integrations as well as to face request peaks through asynchronous data processing. Moreover, these technologies facilitate the integration between the backend processes and the citizen services applications, which are mainly based on portal systems.

Additional aspects key to meeting the scalability demands for the server infrastructure are avoiding dependencies on brands and facilitating migrations and hardware evolutions. Using open and standard-based products, both hardware and software, has been shown to facilitate the achievement of these goals. In addition, applying Virtualization Techniques provides the means to ensure the flexibility of workload management in groups or servers and the agility to change configurations (failures, evolutions).

Concerning IT infrastructure management, two approaches should be noted. The first is Business Continuity Management (BCM). BCM is a holistic management process that identifies potential threats, impacts to business and provides a framework to build a resilient system that effectively safeguards the interest of stakeholders and organization's reputation. This approach has traditionally been associated with large enterprises and public sector organizations.

The second important approach is the use of the Information Technology Infrastructure Library (ITIL) to develop good practices for IT services management, development and operations. ITIL provides detailed descriptions of a number of important IT practices and provides comprehensive checklists, tasks and procedures that any IT organization can tailor to its needs.

Although the above-described approaches provide the means to address a large number of service requirements, social security institutions must also face new challenges. On one hand, the complexity of backend platform follows the growing sophistication of social security schemes. On the other hand, because social security processes across institutions are often not standardized, organizations are unable to share solutions. These issues increase system complexity, risks and costs. However, today, similarities between social security schemes are increasing and international agreements are promoting equivalences. It is for this reason that supporting inter-institutional programmes could be of paramount importance.

The report on Scalable Service Platforms presents a more detailed description of good practices and experiences on scalable ICT platforms, which were taken as basis for the present report. The overall experiences and good practices are accessible in the ISSA Website, <http://www-issanet.issa.int/>.

4. Decision support systems and business intelligence

Over the past ten years, Business Intelligence (BI) has changed the way organizations and companies manage their businesses due to the richness and diversity of information BI offers decision makers and managers. Most information technology systems are able to produce data, yet they fail to produce information that is critical in order to build the strategies for the organizations. The BI systems have evolved since the early 90s with the emergence of Data Warehouses (DW), to the present where these systems are able to provide real-time information. In the past, DW helped organizations build long-term strategies, but it lacked the capability to provide information at tactical and operational levels. Therefore, a new approach has appeared on the surface so that information is now provided at the right time for tactical and operational decisions. BI is not only about technologies or products. Rather it is about the capability of providing business information in the right timeframe and the means to analyze such information in the context of business processes with the ultimate goal of organizational performance enhancement.

Because social security organizations worldwide have been pioneers in automating their business, massive amounts of data has become available. However, for a long time, it was difficult and sometimes impossible to transform this raw data into information that could be used in decision making processes. This was in large part due to the absence of adequate tools

to carry out such tasks. Generating reports and analysis could take months despite the key role this information could play in the decision-making process. This was found to be the case even at Parliament or Government level.

In the ensuing years, technology has advanced and the basis of BI has been established. The DW technology for data extraction, transformation and loading (ETL) has made it possible to collect and process the data more efficiently. Moreover, Online Analytical Processing (OLAP) reporting technologies have become the de facto technology to process and generate reports on the fly. These techniques allow users, like policymakers and managers, to deal with complex information about social security schemes, particularities of contribution, etc.

Today, businesses have begun to understand the importance of aligning the tactical and operational decisions with their high-level strategies. Thus, a new requirement emerged to ensure that all processes are effective. Process performance is continuously measured through a predefined set of Key Performance Indicators (KPI). With this advance, a new concept has received increased prominence: Business Performance Management (BPM). BPM, which is now part of any BI system, allows top-level strategies to be refined and cascaded to lower levels enabling the measurement of the overall performance. Moreover, given the typical scale of social security organizations, it is therefore very important to make information available not only to decision makers or analysts, but also to workers in various departments at various levels, and even in local offices. In this sense, BI is becoming a strategic tool which helps people measure, optimize business processes, and discover the business needs in order to enhance performance.

Concerning the technological packaging, BI is not a product that can be bought and installed. Rather, BI comprises methodologies and a combination of different products that interact to provide the right information at the right time and the means to analyze this information. This, in turn, will lead to accurate decisions and actions.

The report on Business Intelligence and Decision Support Systems presents a more detailed description of good practices and experiences regarding Decision Support Systems and Business Intelligence, and were used as the basis for the present report. The overall experiences and good practices are accessible in the ISSA Website, <http://www-issanet.issa.int/>.

5. Conclusions and recommendations

Increased development of ICT has enabled social security institutions to better position themselves as well-organized entities offering superior service. The project ICT as a strategic management tool addressed key issues regarding the role of ICT in achieving these objectives.

Many ICT developments within social security institutions looked at the provision of services across multiple electronic channels. Additionally, ICT platforms have played a key role supporting the overall operations. Experiences show that different solutions that optimize performance, flexibility, scalability, price and longevity have been adopted. These solutions have harnessed the latest technologies while establishing or upgrading the ICT infrastructure, thus modernizing the way organizations operate. Finally, social security organizations are also increasingly adopting business intelligence tools to support decision making processes, and performance measuring and optimization.

In addition to the technical aspects, this project confirmed the strategic role that ICT is playing in the development of social security worldwide. Clearly, ICT has enabled the implementation of increasingly sophisticated social programmes, reforms and coverage extension, all of which have been accomplished much more efficiently and quickly due to

ICT. ICT has also enabled the improvement of administrative effectiveness and efficiency through more accurate information management.

While ICT has enabled remarkable organizational changes, this project indicated that there remain both opportunities for improvement and challenges to face. First, ICT's transformational potential has not been fully reached as many administrative processes are still based on the pre-ICT methods. Second, the key challenges for ICT application are increasingly based on administrative capacity and human resources skills and not necessarily economic resources. Today a limited budget no longer means an organization cannot introduce a smart solution. Rather, there is work to do in order to convince end users – both workers and citizens – to adopt technology. Finally, a spirit of innovation is critical to the development of practical ICT solutions which are subsequently embraced by end-users.

The project resulted in a number of recommendations, presented below.

5.1. Recommendations for citizen services

- Choose the most adequate channels and customer dialog approach by analyzing the characteristics of the target public and the functionalities required prior to developing systems supporting citizen services.
- Implement Web-based e-Services as the basic channel, in spite of the implementation of other alternative ones. Some portions of the ICT architecture and infrastructure used in e-Services development should be re-used to support the other channels.
- Strengthen the infrastructure and develop technical capacity to support the development and operation of ICT-based citizen services. Take into account that such services would be available to customers outside office hours.
- Be aware of the evolution of the Social Web and Web 2.0. Consider the development of pilot projects and proof-of-concept.

5.2. Recommendations on scalable ICT platforms

- Apply SOA-based design practices and middleware tools for system implementation. Include in the short and medium-term plans for the incorporation of platform middleware software, such as application servers and Enterprise Service Bus.
- Include in the middle-term plans methodologies to systematize business and infrastructure management, for example: BCM and ITIL. The goal is to develop systematic, proactive and preventative approaches to ICT management, rather than reactive and incident-based ones.
- Strengthen support to e-Services by implementing “high availability” infrastructure configurations.

5.3. Recommendations on decision support and business Intelligence systems

- Make the most of information assets, especially in decision making processes. Since the institution's operations are based on ICT, the institution can profit from the richness contained in the registered data and improve different kinds of management processes, e.g. evaluation and control, and business planning and prospective.

- Develop an institutional BI strategy, based on an incremental development approach, and starting with controlled and high-sponsored projects. Apply mainstream methodologies in the field.
- Include information analysis and the systematic usage of BI tools in the formal working processes as well as in the tasks and responsibilities of the involved functionaries.

5.4. Recommendations on topics to be further developed

- Developing specific guidelines concerning service quality appears to be a main issue to address. Such guidelines should take into account not only technical advances but also the local characteristics of populations and institutions.
- Taking into account the tremendous potential of advanced Web, Social Web and mobile technologies, these issues should be addressed in future activities.
- Integrating services and operations continue to constitute a critical issue. Although technologies currently provide the means to implement them, there are gaps on standards and practices.
- Developing benchmarking frameworks and self-evaluation mechanisms would enable institutions to support continuous improvement practices.
- Generating a wider capacity building environment, including, for example academic institutions, would provide value added means to address new trends in a context of economic restrictions.
- Developing practical guidelines and service support mechanisms to assist institutions with ICT application should also be part of the future activities. This would enable a more extensive application of ICT in social security and more comprehensive improvement of social security services worldwide.