Draft Paper

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Investigation of the Design and Implementation of Information and Communication Technology in the Social Security Area

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Abstract

At the end of the 20th century, the world is characterized by political, economic and social change. Cost pressure, increased emphasis on customer service, complexity of administration, organizational restructuring and new technologies are critical factors that have to be taken into consideration when adjusting social security systems to meet the needs of a changing world.

Information and communication technology (ICT) plays an increasingly important role in the social security area, enabling institutions to automate administrative processes in order to deliver value-added electronic services to citizens. In this context, ICT is not only a supportive factor for administrative processes designed to improve institutional performance, but also a driving factor in process re-engineering in social security institutions as a result of short-cycle innovations. In addition, ICT allows integrated information distribution related either to one specific or to all institutions of a social security system.

Before new ICT systems can be used in social security institutions, the process of project delivery has to take place, including the design and implementation of the ICT system. Political stability, legal framework, cultural behavior and commitment, expertise and knowledge are country-specific factors that have an impact on the design and implementation of ICT projects. Customer relationship, communication, budget, procurement and the design/bid/implement approach are project-specific factors which are critical for the project delivery process.

However, no two projects are alike. Keeping in mind that ICT innovations lead to the possibility of implementing integrated and complex ICT systems in the social security area, it is important to think about how to modify traditional procurement approaches, which very often lead to additional costs and delays because ICT systems have to be designed and implemented by separate contractors. An integrated project delivery approach, with the design and implementation handled by one general contractor, will not only save time and money but also achieve a best-practice ICT system based on using all the available know-how and experience of a professional ICT company. With a best practice ICT system in place, social security institutions, in turn, will be able to deliver high-quality services to their customers in a more efficient way.

World Bank-financed ICT projects in the social security area are mostly delivered within the framework of long project cycles with design and implementation handled in a strictly separated approach. Given the potential for ICT systems to strengthen social security institutions, increase efficiency, and enhance customer-oriented service delivery, the World Bank should consider greater flexibility in its procurement guidelines, not only for its own benefit in terms of time and cost savings, but for the benefit of private contractors, and ultimately, and most importantly, for the benefit of borrowing clients and their customers.
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1 Introduction

Information and Communication Technology has brought about a lot of changes in our daily business and private life during the last 30 years, and nobody can predict the changes ICT will cause over the next 30 years as the pace of technological innovations increases exponentially.

ICT is a big challenge for the private as well as the public sector. The only way to effectively run businesses today -- and in the future -- is to face this challenge and make the best of it. As part of the public sector, this also has to be considered by social security systems, which are using more and more ICT to improve the quality and quantity, as well as the effectiveness of their service delivery to citizens.

This paper shall point out some key characteristics of ICT in the social security area as well as the way ICT projects are delivered to social security institutions. It shall find an answer to questions such as: “What role does ICT play in the social security area? Which factors are important for the delivery of ICT projects in the social security area? What is the experience with the realization of ICT projects in the social security area on the basis of traditional procurement guidelines?” By social security, the author means primarily labor, pension and health systems.

The paper is based, first, on the experience of World Bank staff who have taken part in the design and implementation of ICT projects in the social security area in transition and developing countries and, therefore, know very well the specific issues that have to be taken into consideration when designing and implementing such projects.

Second, input has been given to the paper from a major private ICT supplier which has submitted many proposals to ICT projects financed by the World Bank for social security systems in transition and developing countries. Having been awarded contracts as the winner of bidding processes, the ICT supplier also is experienced in the implementation of these projects. In addition, the ICT supplier has realized several ICT projects for social security systems in transition and developing countries which were financed by their own budget. Finally, as contractor with social security institutions in many developed countries, the ICT supplier can also offer a lot of input related to the design and implementation of ICT projects for the social security systems of those countries.

This paper is divided into two main parts, the first of which is related to ICT in social security in a more general sense and describes trends and influence factors on social security systems. In addition, it highlights the importance of ICT for social security institutions.

Experience in ICT project delivery is the second main part of the paper, with a subdivision into country-specific factors and project-specific factors that have impact on the design and implementation of ICT projects for social security systems.
2 Trends

As we approach the 21st century, the world is facing monumental political, economic and social changes. Globalization, the transition from an industrial to a knowledge-based information society and technological progress, on the one hand, and poverty, high unemployment rates and demographic trends, such as the reversal of the age pyramid, on the other hand, all have an enormous impact on the structure of social security systems.

2.1 Influence factors

The following typical factors dominate the present situation in the social security area, and they have to be considered if structures are to be changed in order to protect people against social risks:

- cost pressure
- customer orientation
- complexity of administration
- organizational structures
- new ICT.

2.1.1 Cost pressure

It is not only the private sector that seeks to reduce costs as a way to maximize profits. The shortage of financial resources as a result of dwindling budgets also is evident in the public sector. Increasingly, social security institutions have to make do with restricted budgets, which means that they have less money for providing more services and they have to look for new ways to be able to cover all the required benefits.

2.1.2 Customer orientation

One of the biggest challenges currently confronting the social security sector is the need to change from public administrative organizations to customer-orientated organizations. There is a growing realization that people looking for information related to employment, pensions and health should feel as if they are being treated like valued customers by the relevant institutions. Synergies within and between the different social security institutions, such as one-stop models, can contribute to customer-focussed behavior.

2.1.3 Complexity of administration

Political, economic and social changes demand new approaches within existing administrative structures. This includes modern Western countries with high unemployment rates and partly monolithic social security systems, Eastern European countries’ transition economies, and African, Asian and South American countries with high rates of poverty. In all of these various types of economies, changes in law and new legal frameworks result in an increased complexity of administration.
2.1.4 Organizational structures

New, process-oriented organizational structures within social security institutions are necessary to meet the requirements of a modern and flexible social security system. This implies teamwork, knowledge networking, a dramatic change in behavior and sometimes even a complete culture change process.

2.1.5 New ICT

The high-speed development of new ICT offers new opportunities within the social security area. Self-service kiosks providing a wide range of labor, pension and health information, modern call centers allowing unemployment insurance filing via phone and sophisticated internet solutions for job-seekers are used in several countries. Services can be provided which are accessible at alternative places and more user-friendly, without any time restrictions.

With all of the above-mentioned factors in mind, it is obvious that there is a challenging interdependence between the social security area as a huge market for ICT suppliers and ICT as a critical factor of a successfully operating labor, pension or health service.

2.2 Importance of ICT

On the way to an information society, where knowledge and information become their own agent of production, new and intelligent approaches to solving problems are called for, with information and communications technology playing a key role. If ICT stood for hardware and software in the past, nowadays a whole range of electronic services and solutions is required to provide the necessary control and speed for complex commercial and administrative processes.

Examples of ICT-related solutions in the field of labor and pension are Call Centers, Archiving Systems, Kiosk Information Systems, Internet/Intranet, Data Warehousing, Smart Cards and Document Management Systems. Modern ICT contributes to developing highly effective and service-oriented social security administrations, allowing them to better manage their internal administrative procedures as well as to concentrate on service-orientation toward citizens and keeping citizens’ needs in focus.

The delivery of social security services is based on human resources, processes, technology and information. Electronic services are becoming an increasingly important part of the service provision of social security programs. Three main issues are emerging:

- ICT supports business processes.
- ICT drives business processes.
- ICT provides information.
2.2.1 ICT as supportive factor for business processes

ICT has always been used to support processes effectively and to improve the delivery of social security services. Today, personal computers that are connected to big servers with huge databases can be found in nearly all offices of well-organized social security institutions. There is a big difference between providing vacancies to job-seekers by lists on bulletin boards versus posting the information electronically on self-service kiosks.

Countries with well developed social security systems use sophisticated IT infrastructures to offer a variety of services. Human Resources Development Canada (HRDC), for instance, operates various computing platforms, 25,000 personal computers, local area networks, wide area networks, call centers, Internet and Intranet sites, application programs, databases and 5,000 kiosks. Today, 70% of applicants for employment insurance file their applications electronically; 90% of pensioners receive their pension payment via direct deposit to their bank account; 60% of telephone calls to HRDC are answered on a seven-day-a-week, 24 hour per day basis in an automated fashion; and HRDC has the busiest Internet site in the Canadian Federal Government, with its job bank application racking up over 45,000 sessions per day at an average of 11 minutes each.

Countries that are just starting to develop and offer social security services will establish social security systems with defined business processes using ICT to support these processes.

2.2.2 ICT as a driving factor for business processes.

The development and availability of new ICT is increasingly important for the design of new business processes of social security systems with their customers in the focus. With short innovation cycles leading to the development of highly sophisticated ICT, new opportunities are emerging which may even result in business process re-engineering.

Filing an unemployment insurance (UI) claim normally means that the unemployed person has to go to a local labor office and spend considerable time there being sent around to many offices and asked to do a lot of paperwork. The UI claim filing process is driven by the organizational structure of the labor office.

Modern call centers, however, equipped with state-of-the-art ICT, allow the whole UI claim filing process to be done by phone, thus saving a lot of time as proved in California. The average time it takes to file a UI claim in urban areas of California has been reduced from approximately 240 minutes (including travel and waiting time) to approximately 7 minutes. To use this technology, traditional UI claim-filing processes need to be re-engineered. Once the business processes are accordingly adjusted, the technology turns into a supporting function.

2.2.3 Information provision via ICT

The production, storage, distribution and use of information are the basis for the transparency of a country’s social security policy and for building an effective service portfolio. ICT contributes to offering more information and services in a customer-oriented and cost-saving way, which
results in strengthening public confidence in social security programs as well as in social security institutions.

Which is preferable? Going in person to the nearest pension office -- which can be quite a distance away and take a lot of time -- in order to obtain your monthly pension check or submitting the same questionnaire from your home PC via the Internet, (perhaps doing other work on the computer while waiting for the reply) and, after a short time, being able to plan the financial structure of your retirement? The latter, clearly, is superior customer service.

Reality shows that very often dramatic changes are necessary in order to provide information in a highly efficient way, and there is no doubt about the feasibility of such changes from the ICT point of view. There are modern interactive kiosk systems available which can be installed in as many public places as desired. Call centers are used more and more for making information available. Last but not least, the rapid development of Internet technologies offers the opportunity of accessing information databases from home or public places.

ICT is prepared for information distribution, which can be divided into vertical and horizontal integration. **Vertical integration** makes all the information available related to a special segment of the social security system. For the labor service segment for instance, this means to get information about labor policy, laws, programs, activities, benefits, job offers, and training possibilities by means of one Internet or kiosk application.

**Horizontal integration** offers process-oriented information, which cuts across information from different areas. An example is searching for a new job for an unemployed person who is willing to move if there is no job available in his or her local area. This person can get all necessary information related to the distant new job via Internet or kiosk, including information from institutions other than the labor service. A customized information portfolio can be offered, which includes some important issues to be considered when moving to a new area, a guide with registration procedures that have to be followed, general information about housing (realtors, rent level, electricity, gas, water, phone and mailing services, etc.), training possibilities, cultural and sports events, shopping facilities, restaurants, medical care, schools and other public institutions.
3 Experience of ICT project delivery in social security

New ICT systems play a key role in the management of social security. They contribute to improving efficiency and quality of the social security service to citizens and to strengthening the administrative systems of social security institutions. To this end, the main focus of an ICT project has to be centered on how to help the clients (social security institutions) so that they in turn can better help their clients (insured citizens).

ICT projects are in progress all over the world. No two ICT projects are alike. They differ from each other depending on specific country and project characteristics. Because of these variations, it is not possible to copy exactly a successfully realized ICT project from Country A to Country B.

Several factors have an impact on successful design and implementation of ICT projects in order to meet specific needs of the clients in the social security area. These factors are outlined below.

3.1 Country-specific factors

Wherever ICT projects are designed and implemented, they depend on some external factors of a country-specific nature with political, cultural, legal and capacitive dimensions. These factors are critical for the successful completion of an ICT project.

3.1.1 Political stability

Political environment varies widely among countries. Some countries are politically stable, while others are characterized by major political changes that lead to new institutional structures and organizations in the social security area.

It may happen that all project planning or activities in a country come to a halt while governmental elections are in progress. After the establishment of a new government, which can include the reorganization of the social protection-related ministries, the former ICT project could recommence after considerable delay or even be cancelled.

Short-term governmental changes in politically unstable countries are another reason for postponing or cancelling a project. In such a case, it may never be completed because the new responsible stakeholders do not agree upon the formerly defined and decided project agreements.

These kinds of disruptions should be expected during the design and implementation of ICT projects. Therefore, it is very important to involve not only the political stakeholders, who can be replaced very quickly in some countries, but also the administrative, operational and end-user level in the ICT project from its very beginning. This will help to develop broad consensus and common understanding, thus mitigating the risk of cancelling a project, in which an enormous amount of resources might have already been spent.
3.1.2 Legal framework

New ICT can offer the possibility for social security institutions to provide their customers with effective electronic services. However, laws or legal restrictions may hamper certain initiatives such as a common ID number for unemployment, pension and health insurance. In this case, it is important to ask what can be realized in a social security system from the legal rather than the technological point of view.

Legal restrictions can be found in a number of developed countries. It is more difficult to change the legal framework in developed countries as the legal framework is very complex and often specific for each component of the social security system. Business processes were defined on the basis of this legal framework. Formerly sophisticated ICT systems were built around the business processes and have been developed since then.

On the other hand, transition and developing countries that are just starting to build modern and effective social security systems can seize the opportunity of developing new legal conditions that allow the latest ICT developments to be implemented.

Legal changes are similar to political changes in that they sometimes occur during the ICT project and can require modifications of application software, the development of which has already begun. Such changes are time-consuming and very cost-intensive.

However, independent of a country’s legal situation, the short innovation cycle of ICT often will lead to new opportunities for providing electronic services to citizens. Therefore, social security institutions that aim at delivering effective services have to take into consideration modifications of the legal system in order not to miss the connection to the information age.

3.1.3 Cultural behaviour

Although electronic services in social security are based on the availability of ICT, people are the most important component in this context. Electronic services are designed and implemented by human beings (institutional staff, private companies) for human beings (citizens). But people are different in different countries. Therefore, cultural aspects have to be taken into consideration when new ICT projects are designed and implemented.

The computer generation

It is important to note that for the most part clients of social security institutions are senior citizens who did not grow up in the Computer Age and very likely did not use information technology throughout their working lives. As a consequence, they are often rather intimidated by information and communication technology. Therefore, the number of potential users of computerized self services will remain low in this age group.

Arguments, such as what is often put forth in North America, that senior citizens will become convinced of the advantages of self service once they’ve used it for the first time, may be useless in other countries because senior citizens are intimidated by and unfamiliar with ICT. It does not make sense to design a highly sophisticated ICT system and implement it at once. An incremental approach might be more useful to overcome the negative attitude toward ICT technology. An incremental approach would not pose any problems for the next generation, as
they already have ICT experience and know how to operate a self-service kiosk or the Internet, for example, to obtain personal social security information or to interact with a social security institution.

**Security**
Ensuring the security and privacy of personal data is a big challenge with the wealth of electronic service offerings available today. Such technology enables citizens to get access to their very individual information or even change individual data. To avoid any fraud, it must be very clear that the person making the change or asking for beneficiary record information is the person who is authorized to do so. The willingness of people to accept certain security solutions varies in different countries. It is important to respect the expectations of the citizens and, therefore, to consider alternative security solutions during the design of ICT systems.

**Social isolation**
Although more efficient from a financial standpoint, electronic services may reduce direct communication from human being to human being. In the delivery of social services, this psychological aspect plays an important role, especially in cases where citizens become isolated by age, disability or unemployment. The long-term unemployed who have no one to whom they can speak about their problems, can become increasingly withdrawn and isolated. Although this group might benefit from being able to share their concerns with labour office staff, they would not be able to do so if forced to use self service applications on kiosks. This is another example of the importance of looking at the needs of the citizens and not just at the possibilities ICT technologies offer.

**Vandalism**
Unfortunately, extreme behaviours like vandalism or theft have to be taken into consideration since they do occur in some countries. Frustrated unemployed citizens have thrown a new monitor out of an office window on the 8th floor of a local labour office and attacked labour office staff with knives. Fortunately, these are isolated – and extreme - cases. However, vandalism and destruction of self service computer equipment as well as theft are somewhat common in some countries.

All types of social self-services equipment are at risk from disgruntled citizens. Self-service systems can be offered in very simple forms from wooden racks, which incorporate all the electronic equipment - and may be easily broken - to new technologies with all the electronic equipment installed in the ceiling - unreachable for the end-users who can operate the Internet just by touching virtual buttons reflected on a pure table top. There are other considerations as well, these two systems are different in price. However, the lowest initial cost is not necessarily the most cost-effective alternative.

**3.1.4 Commitment, expertise and knowledge**
Electronic services delivery on the basis of new ICT requires management commitment and user knowledge. Management relates to the decision-makers in government and social security
institutions of a country, while users of new ICT systems are staff of social security institutions as well as citizens.

**Management commitment**
Management participation and commitment is a basic factor for creating the conditions that are necessary to design and implement ICT systems. Management must understand the importance and benefits of electronic services within the social security system in order to make the right decisions on relevant issues, such as organizational restructuring, definition of ICT strategy, and choice of procurement method and suppliers.

Experience shows that it is very hard to design and implement new ICT systems in countries, where government and/or social security management is not aware of the importance of new ICT technologies. Many problems during the implementation of new ICT systems in social security institutions are due to wrong decisions of the management when the system was being designed.

**Institutional expertise**
User training must be part of designing and implementing new ICT systems in order to support business processes in a social security institution. The level of existing ICT experience and knowledge varies by country. There are countries with social security institutions, the staff of which manages adapting to new ICT quite easily with some training. However, in other countries, ICT is being introduced to employees for the first time. Comprehensive training programs must be designed and started with enough lead time to enable staff to practice with and use the new ICT once it is implemented and ready for use.

On the technological level, social security institutions in developed countries often have their own ICT divisions with a lot of expertise. They are able to design the components and prepare the bidding documents of an ICT project themselves. Sometimes, they even develop and implement their own software applications.

Developing and transition countries, however, are faced with a lack of skilled and experienced public sector staff because of the much higher salary structures in the private sector, which draw talent away from the public sector. Some would argue that to build up capacity by investing in training public sector staff runs the risk that these trained staff will then move to private companies. Some countries try to avoid this by outsourcing ICT contracts.

**Knowledge of citizens**
When electronic services are too sophisticated and complex to be successfully handled by the average citizen, this leads to a situation where nobody is able to use the services. Therefore, interactive systems must be designed in a user-friendly and easy-to-operate way. IT suppliers must consider the experience, opinion and requirements of the average citizen.

Citizens of developed countries may have more experience in the use of electronic services, such as Internet or Interactive Voice Response, than citizens of transition and developing countries. In transition and developing countries, ICT knowledge of citizens has to be built up by adequate training programs or learning by doing. Menu-driven interactive ICT solutions should be designed with a clear and logical structure which is easy to understand. In this way people can learn to operate new systems without training courses.
3.2 Project-specific issues

3.2.1 Customer relationship

Although contracts will be awarded on the basis of “hard” factors (lowest price and compliance to contractual, commercial and technical specifications), customer relationship is a “soft” factor which also has an impact on the project design phase, the contract awarding and the successful completion of the project. The quality of customer relationship very often is critical to the decision of the supplier on whether to bid (and spend more than US$ 100,000 on proposal preparation costs for complex projects) or not.

Bidding documents

During the design phase of an ICT project, functionalities as well as technical specifications for hardware and/or software components have to be defined as part of the bidding documents. No matter whether this is accomplished by an external consultant or by specialized staff of the social authority, both look very often, at least partly, at functionalities and technical specifications that are typically offered by a preferred supplier. This is because the social security institution may already work with this supplier’s equipment or the supplier convinced them of the advantage of using those specifications. In both cases, a customer relationship is well established.

In the case where no such customer relationship exists, the designer looks at functionalities and technical specifications of equipment and solutions that are available on the market. This again may result in the preference of a certain supplier over others.

The more specific and sophisticated IT components become, the more probable that one supplier will be preferred. Sometimes benchmark values or other specifications are defined in the bidding documents that give a fairly clear idea to suppliers about preferences. It is helpful to use the pre-bid conference in such cases in order to get information about the possibility and acceptability of alternative specifications.

It may even happen that very special components of a certain supplier are specifically requested in the bidding documents. However, this will be only a relatively small part of the deliverables and all bidders have to offer those special components on a subcontracting basis with the certain supplier.

Award of contract

Independently of the approach to the preparation of functionalities and specifications in the bidding documents, the social security institution may wish to choose a favourite bidder with whom it already has good business relations, even if this bidder is not in first place after the bid evaluation. In case of World Bank financed ICT projects, this wish may be re-enforced by the fact that “the responsibility for the implementation of the project, and therefore for the award and administration of contracts under the project, rests with the Borrower” (see Guidelines to Procurement under IBRD Loans and IDA Credits, paragraph 1.2).

Given such a case, how can a good relationship between social security institution and preferred bidder influence the award of the contract? Issues like additionally offered functionalities, ability
for upgrading options or already existing qualified institutional staff with special know-how about products and services of the favourite bidder may be reasonable arguments.

However, World Bank financed projects are characterized by rather strict procurement guidelines and do not take into consideration such an approach. On the other hand, if these reasonable arguments were part of the bidding documents in order to be subject to the evaluation, it could easily lead to the preference-of-a-certain-bidder problem described in the above paragraph “Bidding documents”.

In reality, there are essentially two ways in which the social security institution can exert influence in favour of the preferred bidder. First, if the preferred bidder is not ranked first after the bid evaluation, non-compliance of substantial criteria of the bidders ranking above the preferred bidder might be found in order to disqualify them. Second, if the bidder is ranked first after the bid evaluation but did not comply with a substantial specification, there might be a waiver of this specification that originally was indicated as mandatory in the bidding documents.

Social security institutions are much more flexible if the project is financed by their own budget, although they might be forced not to select their favourite bidder, even if it is ranked first after the bid evaluation, by some governmental audit division in order to avoid too much dependency on only one bidder.

**Completion of project**

Finally, once the contract is awarded, the project will be implemented by people -- staff of the social security institution and of the supplier. They will work together in several teams, such as a steering committee, a project management team and operational teams on different levels. Getting along together and common understanding of the project objective are critical factors for team member motivation, mutual trust and satisfaction. Motivated and satisfied team members, in turn, will contribute to the successful realization of the project.

It is understandable that human beings do not always get along. In such cases, if it turns out to affect project results, timely measures, such as discussions or even replacement of staff, should be taken.

**3.2.2 Communication**

In general, ICT projects are characterized by intensive and difficult communication. There are many communication channels that are necessary to maintain in order to keep a project under way. Difficulties then stem from the unfamiliarity among the parties involved, from the differences in their objectives (often in conflict), and from cultural differences.

The key players involved in a project usually are the social security institution, the contractor(s), the financing party, the technical and management subgroups, the subcontractors, and eventually the government(s), which may impose certain legislation over the contractor's work.

The more parties involved in the project phases, the more important it is to sustain effective communication. In a global ICT project, not all, but many of the communication channels established between these players occur among parties of different nationalities. The critical issue about communication is that it is the basis of an ongoing negotiation process. Poor
communication may prevent productive agreements that would otherwise be easy to achieve. In other cases, it may lead to situations where two parties both think they have negotiated effectively, but their understanding of the agreement differs substantially.

Besides the fact that a good relationship allows better communication, it also fosters two other important issues that must be mentioned: confidentiality and common understanding.

**Confidentiality**

World Bank projects allow almost no communication during the pre-awarding phase, whether during the preparation of the proposal with mostly one pre-bid conference as the only possibility of communication or during the bid evaluation, as stipulated in paragraph 2.46 of the Guidelines to Procurement under IBRD Loans and IDA Credits:

> “After the public opening of bids, information relating to the examination, clarification, and evaluation of bids and recommendations concerning awards shall not be disclosed to bidders or other persons not officially concerned with this process until the successful bidder is notified of the award.”

Even if information could be brought in writing to the notice of the borrower, the Bank, or both (see Guidelines to Procurement under IBRD Loans and Credits, Appendix 4, Clause 10) after the public opening of bids, writing is not an immediate interactive communication and might lead to misunderstandings, misinterpretation and/or loss of information.

A better way to communicate is used in projects not financed by the World Bank where bidders are allowed to present their proposal as part of the bid evaluation process of the social security institution. This is a good method for getting an overall impression of the bidder and for comparing the bids, sometimes even on the basis of small test installations. In this way, questions can be answered directly, thus avoiding misunderstandings or misinterpretation.

**Common understanding**

Regardless of whether or not the ICT project is financed by the World Bank, communication is a critical factor for common understanding of all teams and individuals involved in the project. Continuous communication means knowledge sharing, transparency and learning by reflection and action throughout the project cycle.

Common understanding for the project objective with the focus on the needs of the social security institution and its customers is the basis of successful project outcomes. Therefore, communication between all parties involved should concentrate from the very beginning on the question of how to serve the social security institution (e.g. the employment service) in order to serve its customers (the unemployed).

Experience shows that lack of communication at the beginning of project implementation very often results in different interpretations and causes problems. This is the case with relatively clear hardware projects as well as with more complex application software projects.

During the implementation of a World Bank-financed ICT project for a social security institution in a transition country, a lot of problems resulted from the fact that too many parties were involved in the realization of the project. The social security institution as borrower hired an
institution that carried out the bidding process. The bidding documents asked for mostly hardware (divided into high-, medium- and low-range servers), workstations, PCs, printers and kiosk systems, including installation. The bidding documents required subtotal prices for each type of hardware and for a total price of all hardware offered. Instead of awarding one contract to one supplier, which is what all the bidders had expected, six different suppliers got a contract. With a total of nine institutions and companies involved in the implementation of one project, it was very difficult to get the right people at the right time around the table and achieve common understanding of the project.

Nobody wanted to be responsible for technical problems with the interaction between the different hardware components during the installation. Every supplier tried to prove not to be responsible for any problems rather than to take the initiative for regular meetings with the participation of all suppliers in order to achieve common understanding and transparency, thus saving time and money.

Once the hardware platform was installed, the same social security institution came out with a request for a proposal for application software. This self-financed project consisted of two main components: applications for the use of the social security institution’s staff and self-service kiosk applications for the use of citizens. For each component, a contract was awarded to a private company. At the beginning of the project implementation, both companies acted separately, without any contact. Problems started to arise when the social authority repeatedly asked the first company for software modifications and even changes of functionalities. The company agreed, but did not inform the second company and neither did the social security institution. As the second company had already started to develop its software component, it was partly not compatible with the repeatedly modified software of the first company. Finally, communication started in the form of regular meetings with all three parties involved; the social security institution as well as the two companies. This communication led to a common understanding of the project and eventually to its completion, although with considerable delay and the budget overdrawn.

### 3.2.3 Budget

The realization of ICT projects has one thing in common: they all cost money. Social security institutions, such as employment and pension authorities, need to get an approved budget for ICT projects. This money can be taken out of the institution’s own budget or from external resources, like credits and loans. It is also possible for an ICT project to finance itself.

**External financial resources**

Many ICT projects in the social security area in transition and developing countries are financed by the World Bank. These projects are welcome to all participating bidders because once the World Bank appraises an ICT-related project, there will be money to pay for its realization.

The budget is fixed in the Project Appraisal Document of the World Bank. This fixed budget relates to the design as well as the implementation of the IT project. As only the results of the design phase will define the scope of implementation in detail, the fixed budget for the design is
reasonable, but the fixed budget for the implementation with all its deliverables to be defined as output of the design might pose a certain risk of underfunding.

Additionally, the fixed budget for the implementation of the ICT project may not be sufficient in order to implement best practice or latest available ICT systems.

**Internal financial resources**

Budgets for ICT projects are also planned and available in developed countries where clients have their own ICT budgets, although they are increasingly forced to manage with smaller budgets. In some cases ICT projects are cancelled or postponed because the budget for these projects has to be reallocated to projects that are more important but have run out of money or were developed at a later point in time, without consideration of the initial annual budget. On the other hand, this kind of reallocation flexibility allows the clients to adjust the implementation budget to meet the outputs of the design.

Concerning developing and transition countries, sometimes social security institutions have their own budget for ICT projects. Experience shows that often they either spend the money for some ICT components - usually hardware components that sometimes even after years can be found unpacked in a corner - or they try to get the most sophisticated and perfect solution designed and implemented with a budget that is insufficient. The latter behaviour may lead the government, which may have been changed in the interim, to take the budget away from the social security institution and reallocate it to another project.

**Self-financing projects**

This type of ICT project is an interesting option to other financial resources. ICT outsourcing or business process outsourcing are ways to have auxiliary or even core client processes done by a professional external company, thus saving money that partly covers the costs of the outsourcing contract.

Another way to self-finance the costs out of the project relates to smart-card solutions. Governments can establish an integrated social service system on the basis of one social security card services with one personal identification number that is related to all social security. This is feasible from the technological point of view. It allows citizens access to self-service kiosk systems to get confidential data about employment records, unemployment benefits or pension-related issues. It also can be used for financial transactions (benefits) as well as for confidential input, such as relevant changes of professional profile. Convincing citizens of the advantage of such an integrated social service system contributes to their willingness to buy this personal card for a defined amount of money that would finance the whole project.

However, this approach is subject to the legal framework of a country, and may not be an option in some nations.

**3.2.4 Procurement**

The procurement procedure of ICT projects in the social security area is subject to public procurement rules and guidelines. Purchasing social security institutions follow either national or, in the case of World Bank- or European Community-financed projects, the international
procurement guidelines of the financing institution. Depending on the scope and nature of ICT projects, rules and guidelines may allow different procurement procedures.

**Scope of project**
Information and communication projects may comprise the delivery of one or a combination of components, such as hardware, standard software, customized application software, and fully automated systems. Additionally, different types of services may be required as part of the project, e.g. installation, integration, maintenance and training. More recently, another type of service - outsourcing – has become increasingly important with social security institutions asking for their operating centre or help desk to be run completely by a private ICT company.

In general, ICT projects are characterized by three types of deliverables:

?? Hardware, often combined with standard software. (Countrywide replacement of terminals by personal computers in all local labor offices, including installation and training is a good example.)

?? Solutions, often combined with hardware and standard software. (Development and installation of a countrywide job and career application which is customized according to special requirements.)

?? Fully integrated services. (User help desk that is operated on the basis of an outsourcing contract).

ICT projects financed by the World Bank are mainly based on the first two types, i.e. standard information technologies and complex solutions. Fully integrated services in the social security area have not yet been subject to World Bank financing. The following table shows how the World Bank distinguishes information systems:
Non-custom information technologies and well-defined technical services, such as
- coordination
- site-preparation
- delivery
- installation
- basic integration
- training
- commissioning
- warranty repair

Complex information systems, such as
- complex business applications
- software development
- complex information technologies
- systems involving extensive technical services for design, development, customization, installation, training, operations and technical support
- a combination of the above

Procurement approaches
Depending on the scope and nature of the ICT project, direct contracting, shopping and bidding are the main procurement methods used by social security institutions.

**Direct contracting** is a method that is applied under very special circumstances without any competition. This may occur if the social security institution wants to extend an existing contract and buy additional equipment or services from the same ICT supplier. Compatibility with existing systems is another reason for direct contracting. Proprietary systems that are available only from one special supplier can also be directly contracted.

**Shopping** is a common procurement method where off-the-shelf ICT components with low value (total price) are required. In such instances, the social security institution asks several competitive ICT suppliers, who are on the official vendor list, to submit a price quotation.

**Bidding** is the method most commonly used for complex ICT projects. Once these projects have been designed, either by a consulting company or by the social security institution, an invitation to pre-qualify or to bid is issued and then answered by competitive ICT suppliers. The bidding process results in the award of the contract to the winning supplier, who will then supply and implement the requested system. In general, bidding is open to all ICT suppliers. However, limited bidding is an option in which a limited number of potential suppliers are invited to bid.

The World Bank developed trial Standard Bidding Documents (SBDs) for the procurement of information systems through International Competitive Bidding (ICB) procedures on the basis of the principal guidelines for procurement under IBRD loans and IDA credits. The SBDs are divided into single-stage bidding and two-stage bidding.

Single-stage bidding should be used when non-custom information technologies and well-defined technical services are required, such as those defined in the above table (left side). In this instance, price should be the dominant selection criteria with an evaluation weight of at least 75 percent.

Two-stage bidding should be selected when complex information systems are needed, such as those listed in the above table (right side). The first stage consists of technical proposals submitted by potential bidders on the basis of functionalities that were defined by a consulting
During the second stage, all bidders qualified during the first stage submit their financial proposals. Two-stage bidding considers technical issues, in addition to price, for the award of a contract. However, there is a certain risk for the participating bidders: To what extent will they be prepared to offer their technical know-how in the first stage without being sure that they will be awarded the contract?

Pre-qualification is a method used to pre-select prospective bidders on the basis of their experience and past performance on similar contracts, their capabilities with respect to personnel, equipment, and construction or manufacturing facilities, and their financial position. Usually, pre-qualification is applied when large or complex information systems are required and is followed by two-stage bidding.

### 3.3 Design/bid/implement

Generally, design/bid/implement has become the traditional project delivery method for complex ICT projects in the social security area. The project owner (social security institution) contracts with a consulting company to design the ICT system and draft bidding documents for the system’s procurement. After the bidding process, the project owner contracts with one or several suppliers to implement the ICT system in accordance with the documents produced by the consulting company.

The World Bank supports the design/bid/implement project delivery method in paragraph 1.8 (b) of its Guidelines to Procurement under IBRD Loans and IDA Credits:

“A firm which has been engaged by the Borrower to provide consulting services for the preparation or implementation of a project, and any of its affiliates, shall be disqualified from subsequently providing goods or works (other than a continuation of the firm’s earlier consulting services) for the same project. This provision does not apply to the various firms (Consultants, Contractors, or Suppliers) which together are performing the Contractor’s obligations under a turnkey or design and build contract.”

Although, the possibility of turnkey or design and build contracts is taken into consideration, in most cases of ICT projects that are financed by the World Bank in the social security area, the design/bid/implement approach is used. Concerning ICT projects that are not financed by the World Bank, social security institutions tend to be more open to turnkey or design/implement contracts. PFI (Private Financed Initiative) contracts in Great Britain as well as outsourcing contracts in social security institutions of several countries are a good example of this trend.

However, experience shows that the strict separation of design and implementation approach may prevent the use of best-practice ICT systems and is time consuming and expensive.
3.3.1 Best practice

With the separation of design and implementation, the social security institution may not get a best practice ICT system because in such cases designing and implementing companies have almost no opportunity to positively influence each other.

It is common for ICT suppliers, once they have the bidding documents, that they could suggest the modification of many technical specifications or functional requirements in order to improve the overall performance of the whole ICT system. However, there is no incentive for an ICT supplier to do this. This is because the ICT supplier aims at complying exactly with all designed specifications and functionalities in order to avoid the risk of disqualification. In addition, the ICT supplier would not realize a competitive advantage from identifying a cost-saving change in specifications or functionalities because, following the procurement guidelines, it would have to be communicated to the other participating bidders.

Consultants who design ICT projects should be well informed of the market trends in the area of social security as well as of the special service and product portfolio offered by ICT suppliers. Otherwise it is very difficult to manage the project the more complex and integrated the requested ICT system becomes, making it very hard for a consulting company to consider all available ICT knowledge and best practice in the design.

Cost-effectiveness

Best practice includes cost-effectiveness. Short-term versus long-term costs is an important issue that is often neglected in the separated approach to design and implementation of ICT projects. The lowest initial cost required for the ICT supplier to get awarded the contract is not necessarily the most cost-effective choice. Initial costs may ignore ongoing maintenance, operating and lifecycle costs as well as aesthetic design and user functionality and friendliness.

Implementing an ICT solution in some local employment offices based on the local requirements may be cheaper initially. However, considering the integration of this solution at a later date into a countrywide employment ICT network consisting of a central, regional and local ICT environment is certainly more expensive at the beginning, but it may be more cost-effective in the long-run.

Single-point responsibility

Finally, customers prefer single-point responsibility whereby responsibility for project delivery can be achieved by awarding a design/implement contract to a general contractor who may in turn use subcontractors during the project delivery. With the separation of design and implementation of an ICT project, the designing company is responsible for the design and the implementing company is responsible for the implementation. Should a problem arise after implementation, it might be hard to determine the responsible party. Is the problem due to improper design or implementation? Sometimes the problem might be even caused by misuse of the owner.

Single-point responsibility for project delivery and operation is possible by negotiating a design/implement/operate contract with one general entrepreneur.
3.3.2 Timeline

How long it will take from the beginning of the design till the completion of the implementation of an ICT project is a critical question for two reasons. First, it is a socio-political issue. Developing and implementing a new IT system for improving social services within an appropriate timeframe is essential for public confidence in the social institution and its service offerings.

Second, time is related to costs. Time saving by optimizing the project delivery process without affecting quality means cost saving. This offers two advantages: the project delivery may need less resources and new social services with cost effectiveness as part of the overall goal are available sooner.

It is obvious that the separated approach to the design and implementation of major ICT projects takes more time. The social security institution has to contract with a consulting company for the design of the project and, on the basis of the results of the design phase, with an ICT supplier for the implementation of the ICT project. These are two separate bidding processes. As they have to be realized sequentially in a bid/design/bid/implement approach, the total project timeline may be one to two years longer than in case of a bid/design/implement approach with only one bidding process.

In most cases, two different methodologies will be used for the design and implementation process, which is not very comfortable for the staff of the social security institution. They have to learn and work on the basis of two different methodologies which, in practice, can turn out to be unmanageable.

Another unfortunate consequence of the separated approach to design and implementation of ICT projects with a long project timeline is that the longer the project takes the more likely there will be changes of framework conditions, which in turn may lead to a considerable delay of project completion. Change in government with a new structure and/or management of the social security ministry and institutions, new legal framework, change in priorities of the project owner, replacement of experienced project staff by new staff, and availability of new and more effective ICT are some examples of the results from long project timelines and can lead to even longer timelines.

In additional, once an ICT project is designed and ICT suppliers are invited to bid, the bidding ICT suppliers have to become familiar with the general situation of the social security institution and with project-related processes and information. Obtaining this knowledge as the basis for a successful implementation of the ICT project takes a certain amount of time, which would be avoided if the ICT supplier was already involved in the design of the project.

Training is very often part of the project deliverables. It is only possible to start training of social security staff who work with the new ICT system once the implementation contract is awarded. Earlier training, i.e. during the design phase, would help social security staff to understand and work with the new ICT system immediately after its installation.

World Bank project cycle
ICT projects financed by the World Bank are very often a small and special component of projects of more global nature, such as social adjustment projects. However, the ICT component has to be considered within the project cycle of the World Bank. This project cycle comprises project design (identification, preparation, appraisal) and project implementation (negotiation/Board approval, implementation/supervision, evaluation). Given the fact that the ICT project is embedded in the project cycle of the global project financed by the World Bank, changes of the above described framework conditions are even more likely as this global project cycle is more time-consuming than the cycle of a stand-alone ICT project.

Once a global project is identified, it will be incorporated into a multiyear country lending program and enter the project cycle with an extensive preparation period at the beginning. Taking into consideration that the whole project cycle, part of which is the ICT component, will take up to five years, it is not easy to define an ICT system and fix an estimated budget sometimes years before the ICT system will be implemented. Who knows what best practice for social security ICT systems will be after several years and whether the estimated and approved budget will still be realistic?

Concerning the design and implementation of the ICT project per se, the whole project delivery process may take a long time if a special complex ICT system is to be delivered. This may start with the bidding process for the selection of a consulting company for the design of the ICT project. After the design, pre-qualification may follow before entering the two-stage bidding process. Taking into consideration that all these processes have to be given a ‘no objection’ clearance by the World Bank’s technical and procurement staff, it is very time-consuming to coordinate interaction between the social security institution, the World Bank, consultants for the design, and bidders for the implementation.

Compared to an integrated ICT project delivery, the design/bid/implement approach will always take much more time. While consulting, design and implementation on the basis of one bidding procedure may be achieved within a time framework of approximately two years, a separated project delivery may take five years.

3.4 Comparison of influence factors in different countries

The following table compares the above-mentioned country-and project-specific factors of influence on the realization of ICT projects in the social security area of developing, transition and developed countries. As the situation is similar in developing and transition countries, there is no explicit division of these two country groups. However, ICT projects may differ in developing/transition countries depending on whether they are financed by the World Bank or by their own budget.
<table>
<thead>
<tr>
<th>Influence factor</th>
<th>Developing/transition countries World Bank</th>
<th>Developing/transition countries Non World Bank</th>
<th>Developed countries</th>
</tr>
</thead>
<tbody>
<tr>
<td>Political stability</td>
<td><em>Governmental and institutional changes</em></td>
<td><em>Governmental and institutional changes</em></td>
<td>Stable situation</td>
</tr>
<tr>
<td>Legal framework</td>
<td><em>Mostly changed within global project</em></td>
<td><em>Changeable driven by ICT</em></td>
<td>Historically defined, not easy to change</td>
</tr>
<tr>
<td>Cultural behavior</td>
<td><em>traditional</em></td>
<td><em>traditional</em></td>
<td>Progressive</td>
</tr>
<tr>
<td>Capacity</td>
<td><em>Basic level</em></td>
<td><em>Basic level</em></td>
<td>Higher level</td>
</tr>
<tr>
<td>Customer relationship</td>
<td><em>Competitive advantage</em></td>
<td><em>Competitive advantage</em></td>
<td>Competitive advantage</td>
</tr>
<tr>
<td>Communication</td>
<td><em>Many parties involved</em></td>
<td><em>Fewer parties involved</em></td>
<td>Fewer parties involved</td>
</tr>
<tr>
<td></td>
<td><em>Limited during bidding process</em></td>
<td><em>More options during bidding process</em></td>
<td>More options during bidding process</td>
</tr>
<tr>
<td>Budget</td>
<td><em>Fixed budget given</em></td>
<td><em>Financial difficulties</em></td>
<td><em>Cost pressure results in budgetary cuts</em></td>
</tr>
<tr>
<td>Procurement</td>
<td><em>Mostly separated design and implementation with extensive timeline and no best practice</em></td>
<td><em>Separated design and implementation with extensive timeline and no best practice</em></td>
<td><em>Separated design and implementation with extensive timeline and no best practice</em></td>
</tr>
<tr>
<td>Implementation (public-private partnership)</td>
<td>Implementation (private finance initiative)</td>
<td></td>
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<td>--------------------------------------------</td>
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</table>

The phrases in italics are potential advantages of an integrated approach to the design and implementation of ICT projects.

In cases of politically unstable situations with changes in top management of government and social security institutions, integrated project delivery may be more sustainable once it is communicated on a broad basis as one major important project for the country’s social security system. Separated project delivery consisting of several project phases is more likely to lead to stop-and-go situations or even to cancellation of already designed projects.

Legal framework adjustment is a big opportunity for integrated ICT project delivery. Once a developing/transition country has changed its legal framework when building a new social security systems, it may take into consideration the availability of new integrated ICT systems covering the whole range of electronic services throughout the social security system. In such cases, it is preferable to realize such complex ICT projects by contracting with an experienced main contractor for design and implementation in order to achieve best practice.

Integrated project delivery with one long-term main contractor allows continuous culture change with regard to the use of modern ICT systems by staff of social security institutions as well as by citizens. At the same time, know-how transfer and continuous training contribute to building skills and knowledge related to ICT.

Although separated project design and implementation should give no competitive advantage to any bidder for the implementation, customer relationship may influence the bidding documents and give advantage to a preferred ICT supplier.

Common understanding of the whole ICT project can be better achieved through integrated project delivery with one responsible main contractor throughout the entire project process.

Where budget constraints exist, savings can be achieved by integrating design, development and operation of the ICT system. This integration is assumed to lead not only towards synergies between design and service operation but also towards more an innovative design, re-engineering and avoidance of over-specification.

Best practice can be achieved within a reasonable timeline by alternative integrated project delivery approaches, such as public-private partnership, private finance initiative or outsourcing.
4 Conclusion

Two major issues should be emphasized with regard to ICT and its implementation in the social security area:

- the increasing importance of ICT in social security systems
- the opportunity for alternative approaches to ICT project delivery

Increasing importance of ICT in social security systems

On the way to a knowledge-based information society, ICT is becoming increasingly important in political, economic and social life. State-of-the-art ICT systems with short innovation cycles lead to new business approaches, such as electronic, or e-commerce. The number of automated business processes increases. Business processes are re-engineered on the basis of new ICT developments. Information is available independently of place and time.

ICT also is gaining more ground in the social security area. Improving the efficiency of its administrative system and delivering high-quality services to insured persons are two major objectives of every social security system, no matter which country. Social security institutions throughout the world are increasingly using ICT in order to achieve these objectives, which are part of the ultimate goal of improving the living standard of the people.

With the focus on the needs of their customers, social security institutions take organizational restructuring and business process re-engineering into consideration, which is very often driven by new ICT developments. Social security services and governmental programs are delivered more and more electronically, which is called “Electronic Service Delivery.”

The vision electronic commerce means that businesses, institutions, and public agencies of all sizes will move their routine operations online. This will increase speed and efficiency, alleviate public costs and free up precious resources for more demanding tasks requiring human judgement. ICT innovations allow the integration of social security services to be delivered in a one-stop approach. Compatibility and powerful data networks are the basis for complex integrated ICT systems covering not only business processes of a special social security institution but common business processes of the whole range of social security services.

Opportunity of alternative approaches to ICT project delivery

The importance of ICT for effective social security administration as well as for electronic service delivery from social security institutions to their customers in mind, raises the question: Which alternative ICT procurement approaches can contribute to effectively helping social security institutions to serve their customers.

As part of the public sector, social security institutions use competitive bidding as the major procurement method for large and complex ICT projects. This procurement method is characterized by a separated ICT project delivery with the design and implementation realized by two absolutely independent and different private companies. In practice, this separated ICT project delivery turns out to be time-consuming and cost-intensive. In addition, best practice will not be achieved if professional and experienced ICT suppliers are excluded from project design.
The more complex an ICT project, the more useful is an integrated approach to its design and implementation. This will lead to common understanding of the needs of the social security institution and the business processes which are subject to the ICT project. On the other hand, these needs can be met by designing and implementing a value-added ICT system on the basis of best practice and knowledge available.

Finally, the latest trends with regard to ICT in social security systems show that new forms of ICT project delivery are emerging. Public-private partnership, private finance initiatives and outsourcing are based on long-term ICT service delivery contracts with an integrated approach to the design, supply and implementation.

Is there a rationale for the World Bank to review its ICT procurement guidelines and modify them towards new project and service delivery methods taking into consideration alternative approaches, such as integrated design and implementation? This refers not just to ICT projects in the social security area, but in other areas as well. The big challenge is to think beyond existing procurement guidelines and modify them in a more flexible way, allowing the World Bank to better focus on ICT project delivery in the social security area and on the needs of social security institutions and their customers. This issue will be investigated in a follow-up to this paper.
5 References

Boes, Dieter, 1999. *Long-Term Contracts in Public Procurement*, Bonn


