Category: Information Technology Recognition Award

Organization: Social Security Board, Ministry of Labor, Immigration and Population

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Name of Project: **Information System Implementation for SSB, Myanmar: Data Entry and Cleaning Project**

Summary

The Social Security Board, Myanmar was established in 1956 in coordination with workers, employers and government as the National Tripartite Dialogue Program under the umbrella team of the Ministry of Labor, Immigration and Population. Since that time, workers socio–economics and healthcare have been provided by the Social Security Act 1954. In 2012, a new Law on Social Security proclaimed an updated set of rules. The Social Security Board (SSB) has been reinstituted as the main body responsible for the deployment and management of the new Social Security Law, which came into effect in April 2014. Over the last four years SSB has deployed a set of administrative procedures and forms supported by a worker ID card system and offline registration program to implement the changes.

Today, SSB has reached to a point where it must enhance its administrative process and Information System to be able to cope efficiently with the number of insured workers and other beneficiaries of the SSB schemes. At present, SSB covers more than 1.3 million workers, a number which is likely to increase significantly as two fold compared with last four years, 600,000 workers. Over the course of the next 5 years the number covered should more than double. In the next ten years it is projected to reach close to 8 million insured workers and other beneficiaries.

The new SSB Information System Project is a web based and mobile based online system that will implement as 3 year project by updating the current computer system's weakness and in line with the Social Security Law 2012 and Rules to record the employer and workers registration data, to record the contribution period and calculate the claim and benefits on time. Currently, the Data Entry and Cleaning Project was started as the basic data cleaning process for existing workers' and employers' registration data.

The issue or challenge

The Myanmar Social Security Board is progressively implementing the new 2012 Social Security law. In April 2014, the SSB started the implementation of the new contribution and benefit levels for the existing benefits (medical care, sickness, maternity, work injury and death).When the New Social Security Law 2012 was started, the desktop offline program for employers and workers registration process and contribution payment process were developed. This offline program was not using a centralized database but it rather used a separate object data file for each worker and employer that was installed on each township office. SSB had 78 offices and 96 own clinics and almost all offices and clinics used the paper form and manual processing for all processes. This offline program carried out the employers and workers registered file (*.dat object files) on each township by DVDs and stored in the Head Office Main Server. Each *.dat file was defined by separate SSN and the SSN number was predefined as blank file and distributed to township office from Head Office.

The weak point for this program was that it did not include a validation process in the worker and employer registration process (like SSN Duplication check, DOB error check, number typing error, etc). Currently the numbers of workers has dramatically increased and the SSN duplication errors cannot be control in the township.

When the workers and employers registered data were merge into the Main Server at Head Office, there were no double control programs for checking the duplication data. Another worst case was not having the log file and the operators just copied and pasted on the Main Server. According to the data analysis on Main Server, 3.3 million workers data and nearly 30,000 employer's data was found and this figure was way over the active insured data. SSB cannot solve the duplication data problem at registration time because of some workers were changing employer very fast within industries and SSB has no tool to check and update in real time. This situation brings the real possibility of some fraud actions.

So, SSB planned to do the SSB Information System with centralized database. The first step is to cope with the existing duplicated data problem. A data assessment and cleaning strategy was design in order to address the problem. The resulting Data Entry and Cleaning project started on (8/2018) and end on (8/2019) as one year project. This project represents over 30,000 man–days of work on nine months (12 months length total,

but 9 months of full team capacity). Simultaneously, the SSB Information System Project tendering processes were finished, a final decision to proceed is actual pending.

Addressing the challenge of Data Entry and Cleaning Project

The main objectives of the Data Entry and Cleaning project are:

- To get the clean data among the existing duplicated registration data
- To have a correct and clean data entry for SSB Information System Project about workers registration, employers registration and also on historic contribution collected since the beginning of the Social Security program
- To be ready to migrate all accurate registered information in the new SSB Information System in order to start with a reliable baseline on which SSB can start on.

Targets to be achieved for Data Entry and Cleaning project

The main task of the project was to get organized to process over 3.3 million numeric records and over 550,000 paper form in order to achieve the objectives. To achieve the project SSB execute the following duties:

- Implement an adapt Data Entry and Cleaning software package (solution) to process the old data in Main Server
- Define business rules in order to automate the conversion by the solution
- Modify the Data Entry and Cleaning solution all along the project to adjust to all different data problem that were discovered on the way
- Implement and integrate a document scanning solution (with the Data Entry and Cleaning solution) in order to have digital information that would provide inputs to double check the old data in in Main Server
- Implement server capacity inside SSB head quarter to support the Data Entry and Cleaning solution including all data and scanned document with a backup capacity (of 10 terabyte of data have to be store and retrieve)
- Implement a data entry and validation room supporting a global team of 80 people for nine months.
- Involve an 45 person IT suppliers team including 8 IT specialist in data cleaning, data base design and document scanning process
- Involve a 30 person SSB headquarter team to validate the results

- Involve 140 person from the 78 townships to collect historic information and validate the results
- Systematic analyses of all results using the reporting tools of the solution
- Produce a final database containing the clean information about worker and employer registration case also providing missing information that will have to be collected in the township when the new SSB Information System will be deploy.

SSB used the service of an external IT service supplier that provides the Data Entry and Cleaning solution as well as the Document Scanning solution and a team of over 45 staff and IT experts. The service has been acquired through a public tender process that respects all the President Office rules according to procurement.

The following are the general outcomes from the Data Entry and Cleaning project:

No	To Do Lists	Expected Target
1	**Data Cleaning Process** To Analyze the existing employers and workers registered files on Master Server To move the resulted (*.dat files) from Main Server to operating server To crawling and importing the (*.dat files) into the Database server on operating server To do data analyzing on the records of Database To create business rules for data cleaning To group and update workers and employer data	About 3 Million Records (*.dat file by password encrypted)
2	**Data Entry Process** To do data entry for the manual workers registered form (Form2) directly into the database	550,000 records
3	**De–duplication Process**	The combined records from the cleaned data from 3.3 million files and 550,000 records of data entry process

Evaluating the results

For implementing the SSB Information System, the tendering and evaluation processes have been done. The following tables showed the results after (8) months of the Data Entry and Cleaning project implementation:

Table (1): Data Cleaning Progress Findings

No	Analysis Findings	Number
1	Worker Registered File	1,857,381
2	Employer Registered File	26,203
3	Blank File (only SSN)	1,416,557
4	Invalid File	4,682
	Total File in Main Server	**3,304,823**

Table (2): Workers SSN Duplication Findings

No	Number of Duplicated Times	Number of SSN Duplicate	Total Counts
1	40	1	40
2	10	17	170
3	9	63	567
4	8	296	2,368
5	7	1,948	13,636
6	6	7,457	44,742
7	5	10,106	50,530
8	4	48,832	195,328
9	3	86,796	260,388
10	2	462,575	925,150
11	1	364,462	364,462
	Total	**982,553**	**1,857,381**

Table (3): Employers SSN Duplication Findings

No	Number of Duplicated Times	Number of SSN Duplicate	Total Counts
1	6	1	6
2	4	94	376
3	3	406	1,218
4	2	2,490	4,980
5	1	19,623	19,623
	Total	**22,614**	**26,203**

Table (4): Data Entry Progress Findings

No	Process	Number of Records
1	Manual Form(2) Scanned Count	469,986
2	Data Entry Count	436,663
3	Data Verification Count	432,789

Final achievement

The end results of the project are a cleaned database of workers and employers. It is providing all correct registration case and identify a number of cases that will have to

be corrected with the implementation of the new SSB Information System. You can see in **Appendix–1** the challenges and targets that the SSB Information System will address.

The Data Entry and Cleaning project already help SSB in its process review exercise (streamlining) thus enabling the improvement of the whole SSB organization.

It also clearly demonstrates that the task of SSB is possible only by implementing an Information System. SSB won't be able to reach its goal of offering social security coverage to the 8 million workers that should be cover according to SSB 2012 law.

Lessons learned

According to the previous conditions, there were several key factors that should be consider carefully and should be taken into account as follows:

- Before going into IT system design one should review the whole administrative process that will be support by the Information System
- All managers have to be closely involved in the process review with all key staff. If managers are not involved, they won't understand the new results produce by the system.
- Administrative process and underlying rules have to be adjusted in order to streamline all operations in order to minimized complexity and insure data accuracy. Only then once can automate validation and verification. Over time, the system will be able to include more complexity. On the short term all managers, staff, workers and employers have to learn the new system before going on a more refined system.
- The scope for the Information System Project should be based on the capacity and accuracy of the data.
- All innovative technology are based on the accuracy of data and any cosmetic technology like web/mobile application can develop and deployed easily if the basic data accuracy is 100 %. We need to avoid the «Garbage in garbage out» vicious circle of information processing
- Not only to consider for the organization data accuracy but also to connect and verification by automatic checking points.
- Technology Innovation is changing very fast and the project plan must be consider for at least next 10 years.

Appendix 1

Challenge and Targets of the SSB Information System

Addressing the challenge of SSB Information System

The main objectives of the implementation of SSB Information System and Data Entry and Cleaning project are:

- To streamline all business process in order to simplify the task of employee, employers and SSB staff.
- To improve the data registration efficiency by implementing a secured and accountable process using biometrics information
- To improve the current services and workflow of the Social Security Board
- To support the registration, contribution payment and benefit claiming processes for the eligible persons by e–Money and e–Payment
- To guarantee and promote the medical provision services for all insure workers in every hospitals and clinics at the nation wide
- To communicate easily among SSB facilities (Head Office, Township Offices, Clinics, Hospitals and so on)
- To increase the trusts upon the SSB from insured workers and to promote the coverage of employer and workers nationwide

Targets to be achieved of SSB Information System

The SSB Information System project processes that will implement within 3 year from 2018–2019 budget year to 2020–2021 budget year as follows:

To do processes within 2018–2019 budget year (1st Year)

- Data Center Main Site Implementation Process
- Telecommunication Infrastructure Setting Up Process
- Telecommunication Cabling Process
- Software Setup for Microsoft Software Platform
- SSB Information System Application Development and Deployment
- Smart Card Printing Process

To do processes within 2019–2020 budget year (2nd Year)

- Help desk implementation process
- Medical provision services process
- Claims process

- Benefits payment process
- E–banking and E–money process
- Training for SSB Staff

To do processes within 2020–2021 budget year (3rd Year)

- Accounting package deployment process
- Human resources package deployment process
- Hospital management package deployment process
- Medicine supply management deployment process