

Country Paper of Supreme Audit Court of Iran

How an SAI can help Government in better IT Management

6th ECOSAI Symposium,

December 16 , 2013

Tehran, Iran

HOW A SAI CAN ASSIST THE GOVERNMENT IN BETTER IT MANAGEMENT

Recognizing the importance of Information Technology as a tool to achieve their socio economic objectives, governments around the world have invested billions of dollars in IT during the last two decades.

Though the investment in information technology can provide high rewards but also present a high degree of risk. Therefore, the success or failure of IT interventions can be critical to the strategy of an organization and can also impact the organization's efficiency and reputation. Studies suggest that for IT projects the failure rate can be as high as 50 percent¹. For public sector, the failure does not only mean loss of financial resources but deprivation of services for general public that can even have detrimental consequences for the government. Too much optimism from peoples' aspect and technology failures from systems' perspective have been identified as the primary causes of project failure. Major critical factors related to the success of IT implementations at government agencies are; business and IT alignment; executive support; IT Solution Readiness; organizational and process change management; skilled resources and funding Arrangements².

IT Management: IT management is the discipline whereby all of the technology resources of an organization are managed in accordance with its needs and priorities. These resources may include tangible investments like computer hardware, software, data, networks and data center

¹ The CHAOS Report 2007, conducted by the Standish Group

² The CHAOS Report 2007, conducted by the Standish Group

facilities, as well as the staff who are hired to maintain them. Managing this responsibility entails many of the basic management functions, like budgeting, staffing, organizing and controlling, along with other aspects that are unique to technology, such as change management, software design, network planning, technical support etc.

Empirical data on IT management across governments is not available. However, from review of IT implementations across governments, it can be deduced that IT management, particularly in developing countries, is reactive where the focus is on automation and resources are only allocated to keep the systems running.

IT AND SAI

For a Supreme Audit Institution (SAI), the integration of IT in every aspect of government functions brings multifaceted challenges. SAIs need capacity to audit information systems including IT driven international agreements and regulations, e-governance, e-procurement and electronic service delivery by the government and IT related investment in hardware, software and human resources. SAIs are also mandated to advise the government organizations on economic, efficient and effective use of public resources and are expected to review and advice on the management functions. Reviewing IT management practices is not the core domain of SAIs and they lack capacity in this area. However, this also presents an opportunity where SAIs can make a significant contribution towards improved service delivery and economic use of resources.

This paper examines the IT interventions at Government of Pakistan, the current role of SAI in IT Audit and Management and the recommendations for the SAI Pakistan to contribute towards better IT management at Government of Pakistan.

Role of SAI Pakistan in Facilitation of IT Management: The SAI Pakistan audits the IT systems with special regards to the following sub-areas of IT infrastructure. The areas have been identified based on internationally available literature³.

- **Strategic IT planning:** This issue includes aspects of a corporate-wide standardized IT strategy, IT-based support of company activities, monitoring the IT market for new developments, and questions relating to the implementation of feasibility studies and system analysis. A critical aspect of strategic IT planning is the alignment of IT goals with business goals.
- **Risk management for the IT process:** Risks must be identified and their potential impact estimated. The actions taken to minimize risk must be analyzed.
- **IT-related infrastructure:** This area deals with auditing relevant aspects of physical security, logical access authorizations, and data backup and archiving systems.
- **Organization of the IT function:** This area primarily looks at aspects of organizational structure and process organization in the information technology function, as well as the

³ Internal Audit Handbook: Management with SAP, Springer Publications

distribution of central and decentralized IT tasks, operational IT planning, and the entire change management process. This also includes the resource management of IT assets and performance measurement of the IT function.

- **Operational IT processes:** The audit has to verify whether the information technology assures the continuity of business processes. The audit may cover all steps, from planning to operational implementation, of the IT process and its sub-processes, including all backup and alternative procedures.
- **IT applications:** This area looks at the entire development, maintenance, and change process during the in-house creation of software, including all testing and release procedures. At the same time it checks that the software versions used are up to date.
- **IT project management:** Under this aspect, the overall project framework is tested, including issues of project organization, project planning, and the running of the project, including risk management and financial project control.
- **Usage of IT applications:** this aspect focuses on examining relevant authorizations, system settings, internal controls and reconciliations, as well as reporting and documentation functions.
- **Communication security:** This area is a significant aspect of all data communication with external parties and therefore an important object in the work of Audit. It includes auditing the use of anti-virus software and firewalls to protect information technology from outside attacks.
- **Data protection functions:** Audits of this aspect examine whether all privacy requirements relating to comprehensive data protection are met, including tracing all sensitive data in the system and logging access right changes, access protection, and all aspects of consistent data maintenance.

Major Developments in Pakistan vis-à-vis IT

During the last few years, technological landscape of Government of Pakistan has been rapidly changing. Many national government agencies have started employing information technology to a growing

range of public services. The IT industry is probably the most exciting and dynamic sector in the country today and has been mainstreamed into every aspect of industrial and economic activity within the country.

There has been remarkable progress in creating effective computerized e-government systems in Pakistan. The National Database and Registration Authority (NADRA) has also introduced computerized registration systems for issuing important documents such as national identity cards, passports, and permanent residency cards. The government launched an e government initiative with a vision to position Pakistan at par with other leading countries of the region in E-Governance. It aims at a fast paced, economical and effective implementation of E-Governance program based upon international best practices.

Some of their significant and recent achievements include:

- Online Processing of Hajj Applications and Status Tracking for arrangements for Hujjaj
- Automation of Prime Minister Secretariat, Islamabad
- E-Enablement of Senate & National Assembly of Pakistan
- E-service for submission of documents at Securities and Exchange Commission of Pakistan
- Salary Disbursement through ATMs
- Installation of LAN and implementation of Mail Tracking and Internal E-mail System at 07 Federal Government Divisions

Government planned to spend Rs 4.6 billion on information technology (IT) projects during the fiscal year 2012-13 with emphasis on strengthening e-government, human resource and infrastructure development. As of 2013 there are 43 projects which are being executed in the sector with a total cost of Rs22.9 billion.

Punjab government launched the Country's largest Information and Communications Technology Park Arfa Software Technology Park (ASTP) which is a one-window operation to attract local software companies and foreign investors to start IT and IT-enabled businesses in an expeditious manner. The facilities provided by ASTP include Cloud Computing, Tier III

Standard Data Centre, IT Infrastructure Deployment and Optimization, Centralized Service Desk etc. It is undertaking projects in various sectors including Agriculture, Health, Education, livestock and transport sector.

Implementation of SAP in Government of Pakistan: In order to bring online a comprehensive system of budgeting and accounting, Government of Pakistan launched **PIFRA** (Project to Improve Financial Reporting and Auditing). The challenge was phenomenal. However, in just 10 years after the first site was made productive, 460 offices are using SAP and more than thirty thousand officers and officials have been trained in use of SAP.

Accounting and budgeting systems of the federal as well as provincial governments have been computerized on SAP/R3 ERP software and integrated through the IT interventions. The system facilitates expenditure tracking to the lowest level of DDO (Drawing & Disbursement Officers), application of budgetary controls and timely financial reporting. Financial managers can access real time financial data pertaining to any entity and can also generate government wide reports. The system interfaces have been developed with key financial management agencies and the banking system to develop an integrated public financial management information system.

On the revenue collection side, Integrated Tax Management System (ITMS) and One Customs information systems have been developed. Moreover, FBR has also implemented SAP for tracking expenditure and revenue of its field offices.

The Project Monitoring and Evaluation System (PMES) has been developed by the Planning Commission with the objective to ensure better management of projects and online availability of data. The PMES is designed to support not only analysis of financial and other resource allocations and utilization but also to facilitate future planning.⁴

In addition, IT projects have also been initiated in judiciary, universities, and corporate entities under the government such as OGDCL (Oil & gas Development Corporation Limited), SSGC (Sui Southern Gas Corporation), NBP (National Bank of Pakistan) etc.

⁴ Interview with Mr. Suhail Qaiser, Executive Director, E-Govt. Pakistan

AUDIT OF INTEGRATED TAX MANAGEMENT SYSTEM – A CASE STUDY OF IT AUDIT FROM PAKISTAN

Director General Audit Inland Revenue conducted audit of Integrated Tax Management System from WITH A view to evaluate information technology controls for data integrity, to ascertain how far the system has been able to achieve its stated objectives by automation in the Department and To evaluate the efficiency and effectiveness of the system. The audit was conducted in accordance with the INTOSAI Auditing Standards.

The ITMS software was developed by Pakistan Revenue Automation Limited (PRAL), a subsidiary of Federal Board of Revenue, with the view to streamline the sales tax and income tax collection procedures, ensure compliance with tax laws and utilize information technology in order to eliminate the tax leakages. Some of the salient observations were:

- Non-development of the requisite functionalities as envisaged in Concept Paper
- Deficiencies in the collection module of ITMS as it could not fully cater for the requirements of tax collection.
- Non-development of Tax Payer Ledger in the Accounting Module
- Non-updation of Information System Plan
- Feeding of Incomplete information in computerized payment receipt (CPR)
- Incorrect application of tax rate and mis-classification of payment code Flaws in Security Controls

The recommendations for Audit included measures for developing the requisite functionalities and removal of deficiencies besides developing comprehensive software development plan and effective training program for end users

NEED FOR IS AUDIT BY SAI PAKISTAN

As stated earlier, the whole budgeting and financial system of Pakistan is being run on SAP. The SAP system is currently being managed and run by PIFRA but it will be ultimately handed over to the CGA (Controller General of Accounts) Organization. Therefore, the SAI Pakistan needs to equip itself with the latest tools to audit IT systems, especially the SAP. In addition, many corporate entities falling in the purview of the SAI Pakistan are using IT systems other than SAP. Therefore, in future, IS audit will become a necessity, rather than an option.

Audit of tax collection may entail audit of IT systems of large corporate entities as well. Therefore, IT audit will have to be made a part of regular and routine audit as use of IT in budgeting and accounting increases manifold in next few years.

Audit Command Language (ACL) software has been adopted which has increased the capability of auditors to analyze 100% of large volumes of financial and operational data. Audit Management Information System (AMIS) is being introduced to enable more effective top-down planning, monitoring and control while at the same time improving process efficiency and providing field audit teams with access to comprehensive data and the ability to work in an environment with latest audit tools, approaches and techniques.

Major IT Audit Findings

Although enormous investments have been made, yet the IT interventions have not been able to deliver the expected results and in some cases even have created redundancies where manual and electronic processes are being run in parallel despite lapse of several years' time period. Generally the IT systems in different agencies have been implemented through isolated efforts and no long term coherent strategy was followed resulting in duplication of effort and suboptimal utilization of resources. Some of the issues highlighted in recent IT audits are: -

- ***Non Reflection of Major areas in the Government Financial Management Information System:*** Though the results of implementation of IFMIS are encouraging with reduced time for transaction processing and financial reporting. However, still financial data pertaining to many major areas such as defense, many of the self-accounting entities, autonomous bodies and donor funded projects etc. is not covered by the newly

implemented systems. In case of other line ministries and departments, the benefits of these systems have not yet been obtained to a larger extent in areas such as budgeting, expenditure tracking, monitoring etc.

- **Non-Integration of Different Systems:** In Pakistan, the IT implementations have been done mostly in silos without following a coherent policy and strategic framework. The information systems developed for fiscal planning, tax administration, accounting and reporting are not integrated with each other. For example, the interfaces of SAP R/3 with State Bank of Pakistan / National Bank of Pakistan for reconciliation purpose are not effectively developed and used.
- **In Federal Board of Revenue, tax system is automated to a great extent.** The tax payers are registered separately for income tax, sales tax and customs duty and issued different identification numbers. Linkages are needed to be developed among the databases in order to have a complete picture regarding payment of different taxes by the same taxpayer.
- **Non-Utilization of System Functionalities:** Though many of the information systems have gone live, but some of the important functionalities have not yet been configured. For example, cash forecasting is used to estimate likely flows of payments and receipts, and the consequent impact on cash balances and issue of debt instruments. An effective and operational system of cash-flow forecasting has not yet been developed. The financial management system has the capability to facilitate cash forecasting but this functionality has not yet been utilized.⁵
- **Improving Auditing Processes:** The major challenge before SAI Pakistan is to develop competencies, skills and knowledge of its staff so that they can utilize IT to support their own internal management as well as enhance the efficiency and effectiveness of their audits.
- **Major improvements have been witnessed in audit methodologies such as the use of data analysis software (ACL).** This tool has enabled auditors to cover 100% of data and not

⁵ Public Expenditure & Financial Accountability of Federal Government, World Bank, 2009

just the sample.⁶ However, the critical success factor i.e. implementation of Audit Management Information System remains a challenge for the office of the Auditor General of Pakistan. The AMIS is expected to ensure faster, more efficient, transparent audit execution, reporting and quality assurance processes.

- ***Change Management:*** Benefits are not delivered nor are goals achieved by technology alone. Benefit is only delivered when People change what they do or how they do it through revised processes. These three elements (People, Process and Technology) must be kept in balance to ensure success. The change management remains the most critical issue for the effective implementation of IT in various government agencies. At the initial stages of the implementation of reforms, there was a strong resistance from the stakeholders across the board and consequentially the implementation process became very slow. This resistance to change resulted in problems like lack of ownership.
- ***Availability of Funding*** The organizations, where financial management information system has been implemented, have not still made the maintenance expenditure a part of regular budgets and resultantly these expenses are still being borne from the project funding.
- ***Capacity Building of Employees & Retaining Technical Experts*** IT capability is closely associated with depth of understanding and skills. In Pakistan, although a large number of relevant staff from various organizations have been trained but due to the absence of effective utilization plan, many of these resources were not posted on relevant jobs. Resultantly, a large number of IT professionals are employed from private sector for maintaining the FMIS. These professionals are hired on market based salary for the projects as the expertise is not available within government departments. The government pay scales do not offer competitive salaries and retention of the professional staff after closure of the project is a key challenge for sustainability of MIS reforms.

Potential Role of SAI Pakistan in helping Government in Managing IT better at agencies

⁶ www.acl.com

As a consequence of integration of IT in every aspect of government functions, the SAI Pakistan is confronted with the challenge to audit:

- IT driven International agreements and regulations
- E-governance, e-procurement and electronic service delivery by the government
- IT related investment in hardware, software and human resources

Moreover the DAGP is also obligated to develop capacity to meet its strategic goals of conducting effective IT audits by:

- Utilizing IT to support its own internal management
- Exploiting IT to enhance the efficiency and effectiveness of audits
- Acquiring the skills necessary to audit in an IT environment.

The DAGP can play a very important role by helping the government in better IT management by:

- Educating the Client
- Improving quality of audits
- Increasing coverage of IT audits

1. Educating the Client

a. Conducting Seminars / Workshops / Trainings

During the past few years, the DAGP has undergone itself a huge transformation wherein new tools and techniques have been adopted to make audits more effective and efficient. Moreover a CISA Academy has been established with the objectives of Developing capacity of DAGP in IS Audit and research and development in this area. Now there is a need to create awareness among the clients such as the auditee organizations, PAC and people of Pakistan so that they may have knowledge regarding developments taking place and could have realistic expectations from DAGP.

b. Advisory and Consultative Role

Since a supreme audit institution has an exposure of various IT implementations taking place in the country, this knowledge and experience can be used as guidance by any organization who is managing IT. The SAI Pakistan can assume the advisor role, without getting directly involved in the decision making process. This advisor role includes a range of management functional areas where the SAI has long-term, demonstrated expertise (IT procurements, IT operations management, information security, business continuity / disaster management etc).

c. Publication of Best Practices Guidelines

IT is an ever changing field and each and every IT implementation possesses some peculiar characteristics. The organizations implementing IT may lack in necessarily required knowledge and skills. On the other hand, an SAI, by virtue of its nature of job, is expected to have exposure of various scenarios in IT implementations. Based upon the this knowledge and experience, the SAI Pakistan can play the role of researcher and develop the best management practices and guidance in areas such as security, outsourcing, , procurements, operations management, business continuity and disaster management, and relevant recommendations and can help the organizations to adopt them. Doing so can enhance the economy, efficiency, effectiveness and, importantly, the credibility of the SAI and help it to serve as a model in better IT management for other government organizations.

d. Access to Audit Information

The SAI Pakistan can contribute more effectively towards better IT management by making IT audit reports easily available preferably on website. The organizations can use these reports as a reference or case studies and could avoid mistakes in IT implementations.

2. Improving Quality of Audits

e. Self-Capacity Building

The major challenge before SAI Pakistan is to develop competencies, skills and knowledge of its staff so that they can utilize IT to support not only their own internal audit management but also enhance the efficiency and effectiveness of IT audits. In this regard, the first thing SAI Pakistan can do is

recruiting audit staff with the right blend of talent and skills and providing them with sufficient training and development opportunities.

As a part of a comprehensive strategy to build the capacity of human resources to skillfully conduct IT audits, **Center for Information Systems Auditing (CISA) has been established at Lahore in year 2010**. The purpose of this center is not only to train officers and other staff of the Department of the Auditor General of Pakistan but also to provide support to various field audit offices for conducting IS audits. The courses on IS auditing have been categorized in three levels. The duration of each level is two weeks.

- The main objective of Level I course is to familiarize participants with the theoretical concepts of IS auditing. The participants can take the CISA certification examination with a little more effort. This course is envisioned to be imparted to every officer of the department so that they may have lower to moderate level skills to evaluate information systems.
- The Level II course focuses on practical aspects of IS auditing. The participants are imparted training on developed IS auditing controls checklists in different IT areas. Case studies and exercises have been developed to make them able to apply their knowledge in the practical IT environment.
- The Level III course focuses on more technical areas such as network penetration testing, hacking, advanced information security, database audit, web server audit etc. Requiring high technical expertise, these courses are conducted with the help of experts from private sector. At present, more than two hundred officers are being trained in the above mentioned courses on annual basis in CISA.

The CISA can also offer a long duration “International Training Programme in IS Auditing” with the present available human resources in DAGP. The said training course could be offered to participants from other SAIs. The duration of the course would be 04 to 05 weeks. The lecture halls of the AATI Lahore could be used to conduct this course.

As a result of the efforts, 8 employees of SAI Pakistan have passed CISA Certification exams.

f. Adoption of International Standards on IS Auditing

SAI Pakistan can play effective role in better IT management through adoption of international standards and best practices in its own auditing processes. These standards include those promulgated by ISACA on IS auditing. Secondly, DAGP can use frameworks such as COBIT as audit criteria for evaluation of performance of IT management at various organizations.

g. Timing of Audits

Studies have shown that if audits are conducted at the early stages of IT reforms, the cost of rectification of errors is significantly less.

The impact of cost effectiveness of removing errors at various stages of IT projects is depicted in graph above. The SAI Pakistan can play a proactive role by first identifying critical IT reforms being implemented by the GOP and then preferably conducting audits / reviews at the earlier phases. Secondly, by doing so, the findings are available to decision makers for timely rectification of errors and to avoid time overruns.

3. Increasing Coverage of IS Audits

Auditing can add considerable value by evaluating various components of IT management in organizations. Auditing offers an independent approach to assessing whether an organization or function is achieving its stated objectives, highlight issues, recommend corrective actions and thus help in increasing the likelihood of success of IT implementations. As mentioned earlier, a lot of computerization has taken place in Pakistan. Now there is a need to cover as maximum as possible of these interventions through audit. Uptil now, IS audits have not been given place in the audit plans of various auditing offices along with other conventional financial and performance audits.

Keeping in view the importance, the IS audits may be given due place in annual audit plans enhance coverage so that audit could add value in IT management at government agencies.

Conclusion

The ECOSAI aims at promoting the state auditing profession in member countries through exchange of ideas and experiences. The member countries have varied levels of computerization in government organizations ranging from transitional phase to advance IT implementations. The collaboration can therefore play a significant role in preparing these SAIs to help their

governments to have better IT management in organizations. Various initiatives can be undertaken jointly by the member SAIs which may include:

- ***Sharing of knowledge:*** Audit findings, Best Practices Guidelines
- ***Peer Learning:*** Jointly conducting practical audits
- ***Capacity Building Programmes:*** Training courses, seminars, workshops etc

Governments in ECOSAI countries are implementing various IT reforms to render better service delivery to their citizens. The SAIs can play a pivotal role in facilitating better IT management by educating the government departments through trainings, practical guidance and through improving the quality of audits.