

LEVERAGING TECHNOLOGY TO ENHANCE AUDIT QUALITY AND EFFECTIVENESS

Name: Lorna D. Cabochan
Position: Director IV
Institution: Commission on Audit, Philippines

1. Introduction

1.1. The use of Information and Communication Technology (ICT) within government entities has become increasingly significant in recent years, particularly following greater use of the internet and organizational intranets. Technology has increased the amount of data and information being processed and it has significantly impacted the control environment. IT is also now a key component of government entities business strategies and core business processing activities. The management of IT risk has therefore been elevated as it now forms a key part of corporate governance. Accordingly, the effective and efficient management of ICT is vital to the success of most entities.

1.2. Specifically, the public sector's strategic goal is focus on the use of ICT to attain impressive growth that is manifested on an environment that ensures transparency, accountability, efficiency in the delivery of services, and spaces for greater competitiveness. Such a demand, together with increased expectations requires the government to optimize the role of ICT in governance.

1.3. The use of ICT in government operations has been a challenge to the auditors as the traditional forms of evidence change. Though we recognize that the audit objectives remain the same, acquiring new audit techniques and procedures is a must for every auditor to address the challenge of ICT. Thus, for an effective audit of transactions and balances processed in an IT environment the use of new techniques and procedures aided by technology would be the practical solution.

1.4. According to the Information Systems Audit and Control Association (ISACA), "In a risk-based audit approach, information systems auditors are not just relying on risk; they also are relying on internal and operational controls as well as knowledge of the company or the business." Thus, a risk-based audit provides a more thorough assessment of business risk, and enables managers to make informed decisions based on their risk appetites. Aligning enterprise IT decisions and practices with the level of acceptable risk in an organization is the driver for beginning a risk-based audit, and it is the risk assessment process that helps determine that risk threshold.

2. Usage of Technology In Public Sectors

2.1. The Philippine government is into massive efforts of leveraging technology to improve service delivery to the citizenry. In its pursuit of a digitally-empowered and integrated government, e-Governance moved beyond toward strategic initiatives that is, those that optimize resources through shared services and create additional value of interoperability and access to a more open government. All the existing efforts are anchored on the past experiences, activities and assessment results of the government's commitment to using IT as early as in 1971.

2.2. Realizing this goal the Philippine government came up with a comprehensive IT strategic plan called the Philippine Digital Strategy (PDS) for 2011-2016. The formulation of the plan is focused on building on the past, consolidating current needs and developing vision for the future. It sets the development of e-Government as a priority, facilitating greater efficiencies and effectiveness in the delivery of basic social services and minimizing opportunities for corruption. Emphasis is placed on enhancing the capability of government structures and institutions as well as upgrading the ICT skills of the entire bureaucracy. The goal is also to enable citizens and businesses to transact with government electronically.

2.3. To ensure the realization of a successful e-Government, the e-Government Master Plan (EGMP) was conceptualized which is a three-year plan that

provides blueprint for the integration of ICTs for the whole of government. It builds on past plans while incorporating current aspirations to create a vision for the future. The plan recognizes that the issue of interoperability and harmonization is not solely a technical problem, but also includes many organizational concerns that need to be overcome. As such, the plan also describes the systems of governance (e.g. institutions, agencies, processes, resources and policies) that need to be strengthened to make its implementation possible and sustainable. The EGMP adopts a whole-of-government approach that supports the PDS. There are two identified implementation strategies of the EGMP which are now in work in progress¹:

Medium-Term ICT Harmonization Initiative (MITHI)

2.4. MITHI is a process that will help the E-Gov Master Plan (EGMP) with a bottom-up perspective of their ICT needs, which shall then be "harmonized" for inclusion into the EGMP. It is designed to synthesize ICT operations among all government departments and agencies, ensuring coherence and compatibility among ICT programs and projects across government, as well as their alignment with the Administration's five Key Result Areas (KRAs): integrity of environment, inclusive growth, poverty reduction, peace and rule of law, and most especially, good governance. It aims to foster synergy across government by developing inter-operable ICT systems that will empower every sector of the government and are responsive to the needs of the people².

2.5. It places a premium on government interoperability, collaboration and shared resources. This focus highlights the need to develop basic national electronic registries that will be used to support interoperability efforts. While placing a premium on interoperability, MITHI does not exclude mission-critical, agency-specific applications to further improve the delivery of services. It identified priority projects which are categorized into the following:

- Public Financial Management Cluster

¹ E-Government Master Plan for 2013-2016.

² Medium-Term Information and Communications Technology Harmonization Initiative (<http://mithi.gov.ph/>)

- Citizen Frontline Services Delivery Cluster
- Ease of Doing Business Cluster
- Higher Education Cluster
- Basic Education Cluster
- Health Cluster
- Justice, Peace and Order Cluster
- Energy
- Land and Other Geospatial Information
- Disaster Management and Climate Change Cluster
- Public Works and Transport Cluster
- Transparency and Citizen's Participation Cluster
- Citizen Registry

Integrated Government Philippines (iGovPhil)

2.6. To effectively implement the tasks laid out in the E-Government Master Plan, a fast and efficient network is needed to interconnect government offices for coordinated and simplified public service. The iGovPhil is now working with several projects that is geared towards increasing the security of online government services, tapping unused TV frequencies for broadband in underserved communities, and the developing a payment gateway that will cater all collections of the government. The project will also integrate existing government networks and applications. To date, the iGovPhil ongoing projects and services include the following:

- Fiber Optic Network (FOC) - the network is envisioned to have enough bandwidth capacity to accommodate the expected rise in the volume of traffic with the implementation of the various developed iGovPhil shared software, applications and services. This will benefit participating government agencies through lower Internet cost and faster data transfers for government-to-government (G2G) communications and transactions outside the Internet. The benefit for the citizens will be faster and more efficient government service.

- Government Data Center (GDC) - serves as the launching point for many government services such as cloud computing, web hosting, server colocation, and other operations. A number of agencies operate their own data centers or outsource their data center needs. The current trend in governments, however, is toward data center consolidation, not only to cut back on costs, but to optimize ICT resources and operations, and address data security concerns. The GDC makes faster data exchange and collaboration among government agencies. It provides centralized servers and colocation and storage facilities.
- Government Cloud (GovCloud) - the current Cloud Infrastructure-as-a-Service (IaaS) was setup in 2013. Computer, storage and networking – is “virtualized”. The virtualization – or the creation of virtual (rather than the actual) version – of all of these resources makes it possible for the government to simplify the process and deliver its services in a fast and efficient manner. Cloud services can also be provisioned and reallocated on demand depending on the budget, resource requirements or time of the year.
- Government Mail (GovMail) - providing the government offices and personnel a credible online identity. This is also designed with more collaborative features such as central calendar for easy collaboration on tasks and scheduling of meetings and other activities. It also has a Briefcase feature allowing efficient sharing of files to one another. GovMail is also hosted in a central server owned by the government for added security. Simultaneously, this can save money for the government agencies since they do not have to manage their own server and pay for Internet service and data storage.
- I. Public Key Infrastructure (PKI) - one of the core services being offered by the iGovPhil project and will foster trust in the government by ensuring secure and reliable online transactions. All government online

applications stand to benefit from the use of the PKI and this ultimately improves service delivery of the government to its citizens.

- II. Government Online Payment System (PhPay) - is an Internet-based electronic payment facility and gateway that will enable citizens and businesses to remit payments electronically to government agencies. It renders services through various delivery channels, which include debit instructions (ATM accounts), credit instructions (credit cards) and mobile wallets (SMS).
- III. National Archives and Records Management Information System (NARMIS) - is a program that integrates systems of managing records, documents and archives of national government agencies. NARMIS is composed of Archives and Records Management Information System (ARMIS) and Agency Records Inventory System (AgRIS); systems that contribute to a rationalized approach to document management, from creation to routing, archiving and disposal.

2.7. Overall, the leading driver of the EGMP is the Information and Communications Technology Office (ICT Office) under the Department of Science and Technology (DOST). It is headed by an Executive Director (ED), who oversees the implementation of the ICT Office's mandate as provided by law and as directed by the DOST Secretary. The ED is assisted by two deputies: a Deputy Executive Director for e-Government and a Deputy Executive Director for Cybersecurity, on whom the responsibility of pursuing the plans indicated in the EGMP. ICTO is collaborating among agencies and stakeholders through the agency's Chief Information Officer (CIO)³.

2.8. In addition, there is also the Philippines-Australia Public Financial Management (PFMP) is a long term partnership between the Governments of Australia and the Philippines to improve the efficiency, accountability and transparency of public fund use in the Philippines. The Australian

³ Integrated Government Philippines Project (<http://i.gov.ph/>)

Government has committed A\$ 30 million to the program for a period of five years, from its commencement in October 2011 up to 2016. The PFMP is assisting the Philippines Government to implement its Philippine PFM Reform Roadmap: Towards Improved Accountability and Transparency, 2011–2015. This comprehensive Public Financial Management (PFM) reform agenda aims to clarify, simplify, improve and harmonize the financial management processes and information systems of the civil service in the Philippines⁴.

2.9. Executive Order No. 55 signed by President Benigno S. Aquino on September 6, 2011 authorizes the PFM Committee composed of the Commission on Audit (COA), Department of Budget and Management (DBM), Department of Finance (DOF) and Bureau of Treasury (BTr) to oversee and coordinate the integration and automation of government financial systems, and implementation of the PFM roadmap. Related projects that are currently being undertaken are the following financial systems:

- I. The Government Integrated Financial Management Information System (GIFMIS) – is an integrated IT solution that can collect and organize financial information in a central database to support the budget preparation, management and execution, accounting and financial reporting. It aims to harmonize and improve business processes and rules toward making reliable financial information and analysis for policy decisions among executives, managers and staff in the line and oversight agencies.
- II. National Payroll System (NPS) - is a component of the larger Government Human Resource Information System (GHRIS) which aims to unify all human resource management operations in the government – from recruitment all the way to retirement. The NPS aims to facilitate the quick and efficient processing of employee and salary benefits across the whole government.
- III. Treasury Single Account – is a unified structure of government bank accounts that aims to consolidate and optimize the use of government

⁴ Public Financial Management (<http://pfm.gov.ph/>)

cash resources. Agency bank account balances will be clearly visible thus better cash management and accurate and timely information on cash resources is attained.

2.10. Another important government initiative which aims to further support the ongoing projects is the full implementation of the e-commerce transactions in the government. While we cannot deny the success of e-commerce in the private sector, there is really a need to push this technology in the government. Some of the activities being undertaken are surveys undertaken to determine the potential of the technology in the government and the revisiting of Republic Act 8792, the e-Commerce Act of the Philippines. An e-Commerce forum was recently held attended by various CIOs of government agencies who had discussed and came up with a proposed roadmap for the full implementation of e-Commerce in the Philippines.

2.11. These ongoing projects are manifestations of the government commitment for transparency and accountability leveraging on the use of ICT to further improve the delivery of services to the citizenry. With all the needed logistics and full support from the government, the major challenge now is how to cope with the delivery deadlines of the projects along with the identified challenges that would impact the success of e-Government that includes:

- institutional capacity at the agency level;
- legal framework;
- fear of change;
- global competitiveness;
- job obsolesces; and
- political will.

3. Auditing e-Government/ICT Environment

3.1. SAI Philippines had already embraced the challenge of technology as early in the nineties. In August 1990, SAI Philippines created and institutionalized the Information Technology Center (ITC) to respond to the demands for better

public financial management systems in general, and to the improvement of the audit service delivery in particular. We were oriented on the components of the IT environment and accordingly on the various information systems implemented that impact the assertions in the financial statements. Information systems audit were conducted particularly for auditees with computerized environment that is based on the Control objectives for Information and related Technology (CoBIT), the globally accepted IT audit standard.

3.2. In preparation for the full implementation of the e-Government projects, SAI Philippines continues to recognize the benefits of technology to further enhance the audit capability of auditors. Thus, in 2013 the Integrated Results and Risk-Based Audit (IRRBA) framework, the audit methodology of SAI Philippines, developed in-house the computerized version called the Integrated Results and Risk-Based Audit Software (IRRBAS). The IRRBAS is a web-based solution that aims to provide a useful tool for the auditor in performing his/her interim and year-end audit using an integrated results and risk-based audit approach and to promote the use of standard work papers/templates. IRRBAS is designed to interface with the GIFMIS, the financial system to be used by the national government agencies. With the interface, auditors assigned in national government agencies will be able to download financial transactions processed by the system so audit of these transactions can be done at any point in time. To date, the IRRBAS is now piloted in 10 out of 16 regional offices of SAI Philippines.

3.3. The conduct of IT audit as a component of financial audit is part and parcel of the Integrated Results and Risk-Based Audit (IRRBA) framework and follows the CoBIT structured approach. The approach consists of the following processes:

- I. Gather information and plan the audit
- II. Obtain and document understanding of the IT environment
- III. Evaluate IT controls
- IV. Apply Computer Assisted Audit Tools and Techniques (CAATTs)

V. Communicate audit result

3.4. The structured approach starts with the prioritization of critical information systems that considers the criteria on the nature, number, value, volume and frequency of accounts affected. Identification of risks in the IT environment along with the process risks are the result of the next process. To determine whether the identified risks are mitigated, the review on the adequacy of controls is conducted which shall cover the determination whether design of IT internal controls exist focusing first on IT processes categorized as general controls. If IT general controls exist, test of application controls follows through validation testing and use of Computer Assisted Audit Techniques (CAATs). These are just some of the new audit techniques that the auditor uses so as to determine the degree of reliance on these controls and in substantiating computer processed transactions and balances. SAI-Philippines uses different computer-assisted audit tools and techniques such as the Interactive Data Extraction and Analysis (IDEA) and Audit Command Language (ACL). MS Excel and the Visual FoxPro Structured Query Language (SQL) are also used as an alternative audit tools.

3.5. As to the audit of the ongoing e-Government projects SAI Philippines is not yet exploring this side of the audit. The IT audit being done is basically on the implemented financial systems that give impact on the assertions of management in the financial statements. Hence, we believe participating in the discussion on this type of review conducted by other SAIs accompanied by sharing of related audit experiences will definitely assist SAI Philippines to explore and properly plan the review on the ongoing e-Government projects.

4. Technology-Based Approach Through the Use of Audit Tools

4.1. The use of CAATTs like IDEA, ACL and Microsoft excel has been a mandatory audit technique for auditors to further validate the processing controls embedded in the information system subjected for audit. Moreover, the use of audit software and other alternative audit tools like MS Excel and

SQL is a great help in substantiating transactions and balances. These tools can also facilitate simple data analytics.

4.2. However, there are certain challenges encountered by the SAI auditors on the use of these CAATTs particularly on the downloading of processed data where assistance from management/auditee is always needed as data is extracted from different back-end platforms. In addition, the limitation on the budget for procurement of licenses of the generalized audit software is another main concern. SAI Philippines addressed the challenge on the limitation of licenses by exploring the advance functions of the MS Excel that can be used for data analysis. The IT audit group successfully explored this alternative audit tool and cascaded the learnings to the auditors in the operating sectors. To date, auditors heavily rely on the use of MS Excel because of availability and accessibility and the non-incurrence of cost as this is already packaged on the MS Office software, currently installed on the laptops/desktops of the auditors.

5. Capacity Building

5.1. Enhancing the audit capability of the SAI auditors is a continuing process. Part of the recently implemented ladderized training program of the SAI Philippines considered the objective of the auditors' appreciation on ICT used in government operations. Basic concepts to fully understand the IT environment is pre-requisite to move to the modules on IRRBAS, information systems audit and the CAATTs. At the executive level training program, a module on the e-Trends in government is included to constantly update the executives on the emerging technologies.

5.2. As mentioned in the previous paragraph SAI auditors have already embraced the challenge of technology in the conduct of audit thus, every year we have in our capacity program a training update on IT and IT audit as well as the current trends used in government operations. Examples of the recent training update was the USAID project on the use of mobile money and the recently developed Government Online Payment System which will be

implemented in the national government agencies in the first quarter of next year. The training update gave way to the auditors to be oriented on the functionalities of the software and somehow identify if related risks, are mitigated and properly embedded in the program of the information system.

5.3. IT and IT audit trainings are always major considerations in the competency or capacity building plan of SAI Philippines. We usually collaborate with external partners who are experts in information technology. In this way, we are assured that the building of the level of confidence of the auditors to face the challenge of technology is attained even at the minimum. To further support the enhancing of the audit capability of the auditors in the sectors, the IT audit group is continuously providing technical expertise through actual conduct of information systems audits.

6. Impact of Analytics

6.1. SAI Philippines recognizes and appreciates the vital concepts of data analytics and one way or the other SAI auditors are already using the basic application of this technology. As mentioned in the previous paragraphs, the use of CAATTs on the processed data extracted from the information systems subjected for review facilitates the complete audit of transactions and balances. Moreover, access controls can also be substantiated through data analytics software and facilitate the determination of the level of security of logical access.

6.2. Findings or observations resulting in the data analytics through the use of generalized audit software are normally communicated to auditees in the audit report with the recommendations for improvement or correcting processing errors. Supporting outputs for data analytics are attached to the audit report for better understanding on the errors/issues raised in the report.

6.3. Admittedly, SAI Philippines is still exploring big data analytics and we believe that participation in the discussion and sharing audit experiences other SAIs will facilitate better understanding of big data coming from the different back-

end platforms. Learnings from these discussions and fora may help SAI Philippines to properly plan the utilization of this technology and further enhance the skills of the auditors on this field.

7. Conclusion

The challenge of technology in audit can be better addressed practically also by the use of appropriate technology as technology is here to stay. Undoubtedly, technology will definitely be prevalent in all aspect of operations of every organization. The trend of using ICT of both the private and public is not only driven for global competitiveness but more on improving the quality, efficiency and fast delivery of service to the clients, stakeholders and citizenry. Auditors cannot afford to be left behind by technology as the quality of audit will definitely be affected. Leveraging on technology is only the appropriate mechanism to enhance the capability of auditors to deliver quality audit on a technology driven entity. Continuous training and exposure on the emerging technologies must always be a part of the capacity building plan of every SAI to ensure that new audit techniques and skills are acquired by auditors and create a level of comfort in embracing the challenge of technology.