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"IT AUDIT: ISSUES, LESSONS LEARNT AND ACTIONS FOR A SUCCESSFUL IT SYSTEM IMPLEMENTATION"

By:

CAROLINA MUYANG LILENG
PRINCIPAL ASSISTANT AUDIT DIRECTOR
SAI MALAYSIA

1. INTRODUCTION

This country paper has been prepared in response to the requirement of the 24th INTOSAI Working Group on IT Audit (WGITA) Meeting in Warsaw, Poland from 29th May to 1st July 2015. This paper aims to share an overview of technology development in the Malaysian Public Service, the National Audit Department of Malaysia's (NADM) experiences in IT audit by highlighting some of the audit issues and lessons learnt as well as actions for a successful implementation of IT system.

2. INFORMATION COMMUNICATION TECHNOLOGY (ICT) DEVELOPMENT IN MALAYSIAN PUBLIC SERVICE

2.1.   The Government of Malaysia recognised that ICT is a strategic enabler in improving the Government delivery system founded on the Concept of 1Malaysia: People First, Performance Now." The Government's commitment to enhance the delivery and effectiveness of the public service is reflected in the 10th Malaysia Plan which emphasises on leveraging ICT to increase productivity, minimise redundancies and improve efficiency. The Malaysian Public Sector ICT Strategic Plan (2011 -2015) provides the blueprint to accelerate the innovative utilisation and development of ICT in the public sector. The Government's commitment to fulfilling the aspirations of the people is further reflected in the 11th Malaysia (2016 – 2020) to ensure that its citizens and economy keep pace with the digital global economy. This aspiration will be achieved through expanding and upgrading broadband infrastructure through deploying broadband as an essential service, improving international to last-mile connections, and integrating digital infrastructure planning as one of its strategies to catapult Malaysia towards the end state of being an advanced economy and inclusive nation.

2.2.   The Government of Malaysia continuously introduced new technology in developing government infrastructure and systems to ensure effectiveness of public service delivery. In 1997, under the 7th Malaysia Development Plan, the Malaysian Government introduced the e-government project. Under the 9th Malaysia Development Plan, the Government has further increased the allocation for ICT development from RM2.8 billion to RM5.17 billion. To date, more than 500 major systems have been developed and used in various ministries, departments and agencies at the federal government level to improve public service delivery.

2.3.   The use of ICT has remarkably changed the manner in which the Government operates where core systems, processes, procedures and rules are increasingly transformed and innovated for a more efficient and effective operation as well as service delivery. Nevertheless, new technology brings new organisational risks and this will ultimately bring new financial risks as well. These changes are also creating major impact on the auditing profession in terms of the nature, timing and results of the audit work. Thus, auditors need to keep abreast with the client's advancement in technology usage with regard to audit methodology, tools and techniques.

3.   OVERVIEW OF IT AUDITS CONDUCTED BY NADM

3.1.   The technology adoption project in NADM commenced as early as 1980's where the technology enabled audit method begun with the purchase of audit software, ACL. NADM had been using Computer Assisted Audit Technology Tools (CAATTs) in doing the interim audit. Initially, data were downloaded from Accountant General Office using round tape, then cartridge platform was used to download data. Nowadays, with remarkable progress in IT and sophisticated communication infrastructure, data are downloaded from the client office using the Infra Network. Besides that, NADM uses the Audit Command Language (ACL)'s data analysis software to dramatically improve its government audit processes.

3.2.   In NADM, IT Audit is carried out by the IT Audit Division which conducts monthly analysis of financial data from 23 branches and had successfully verified transactions worth RM475 billion for Financial Year 2012 and RM488.2 billion for Financial Year 2013 through concurrent audit processes. The team is also paving the way for other public sector organisations to improve their audit processes by sharing knowledge and data analysis best practices with various government ministries, departments and agencies. In performing the attestation audits, Computer Assisted Audit Techniques & Tools (CAATTs) approach is used for data analytics using ACL. With regards to IT projects and system development, IT audit team perform concurrent audit during development as well as at the pre and post implementation.

3.3.   NADM had reviewed various major ICT projects implemented by the public agencies to evaluate the effectiveness of these IT projects management, planning, implementations and monitoring practices which involved system performance and assessment on business

process with IT process. Concurrent audits during development as well as the pre and post implementation phases are carried out.

4.   IT AUDIT ISSUES AND LESSONS LEARNT

4.1.   Some of the ICT projects reviewed include e-Land, e-Procurement, School Management System, Royal Malaysian Immigration System (SIM), Royal Malaysian Custom Information System (SMK), e-PBT (e-Local Authority), 1BestariNet, Chromebook and Thin Client Projects and so forth. The audit results have identified significant weaknesses in the project management, implementation and monitoring which affected the performance and utilisation of the systems as described below:

4.1.1. UNDERUTILISATION OF IT SYSTEM

IT systems were developed by the public agencies to expedite their business processes and tools to manage information. Although the systems developed are meant to expedite their business processes, there is still resistance from staffs. In most of the systems audited, the major issue was system underutilisation in terms of functionality. The audit of the e-Project Monitoring II, e-PBT (e-Local Authority), and 1Bestari for example yielded interesting facts such as, underutilisation of the system functions due to lack of knowledge; lack of training, delayed in project implementation due to the additional scope of work or change requests by users, system specifications were not clearly defined, and database was not updated due to lack of monitoring from the central the agency.

4.1.2. CONFLICT IN MANAGING THE ICT SYSTEMS AMONG THE PUBLIC SECTOR AND SYSTEM DEVELOPER

In high technology environment, the critical competency is to clearly define the roles and responsibilities of the public sector, key process owner and vendor in focusing on ICT value, risks and performance of the systems. The audit examination indicates that there is conflict in managing the ICT systems among the public sector and system developer (vendor). As required by The Malaysian Administrative Modernisation and Management Planning Unit (MAMPU) circular, all government agencies should have committees to deal with ICT related issues such as Steering Committee, Technical Committee and Project Management Team. However in most cases, the agencies do not set up these committees because project owners assumed that the project implementation team is sufficient to manage the projects, and in cases where the committees are set up, their roles are

undeceived. In some cases these committees were only set up after the audit is carried out. Besides that, many projects did not obtain the Central Agency's Technical Committee approval and value management was not implemented for project values exceeding RM500,000. Generally, the contract documentations were too general without protecting the government interest and hardware or software specifications were also not detailed out accordingly. This is so because the people who run the project has no experience in project management or have no expertise in the IT field.

The lesson learnt is that the ICT governance should be practiced and complied as to provide strategic direction to the public sector and vendor. The success of any new system implementation requires active contributions from each individual in the organisation. It involves taking part in coordinating tasks, knowledge sharing and having sense of belongings to the system developed.

4.1.3. ICT OUTSOURCING ISSUES

The lack of technical expertise and experiences in public sectors prompted outsourcing to be applied in most ICT initiatives. Most public sector agencies become too dependent on vendor in the implementation of ICT projects. Lesson learnt from outsourcing is business risks which include deficient compliance with contract terms, system/equipment's specifications and user requirements. Audit findings revealed that these business risks have created problems in the system implementation such as vendor driven, existence of hidden cost, increase cost and knowledge gaps. As a result of high dependency, on vendor expertise, the staffs are incompetent to manage changes or modification to the systems, also decelerates the learning process, resistance in knowledge transfer, unproductive technology transfer and low sense of belongings. The knowledge gaps create unsatisfactory system's performance as well as ineffectiveness transfer of expertise among the staffs.

These scenarios can be seen in several ICT initiatives such as the e-Land system, e-Procurement, e-PBT and Hospital System (HIS), 1BestariNet and many others. Another common audit finding is, users are not confident of performing data extraction, therefore vendor assistance is required and bank reconciliation is still in a manual format as users do not apply the entire accounting module.

4.1.4. PERSONNEL COMPETENCY, EXPERTISE AND RESPONSIBILITIES

Generally, ICT project implementation involves different level of personnel with different competency, expertise and responsibilities. High level personnel are entrusted to ensure strategic alignment of IT with business, conduct risk management, performance measurement and resource management. The tone at the top should be conducive to ensure the management practices and policies are well supported by the lower level personnel. From the perspective of system development, a participative strategy would be beneficial to the organisations which include getting the lower level personnel involve in the system development process such as user requirements studies, testing phase, conducting pilot studies and disseminating of information, procedures or standards. This strategy will enable users to participate by giving suggestions in addressing issues related to technological or business processes. Based on the audit reviews, staffs are not competent enough to manage the system because training was not sufficient and responsibilities were not properly aligned for each staff.

4.1.5. EFFECTIVENESS OF INFORMATION SYSTEM'S PERFORMANCE

The effectiveness of information system's performance is very important in ensuring successful service delivery. Effectiveness can be in the forms of cost saving, time reduction, increase in volume of transactions, allow quick resolution, and expedite the operational processes. In evaluating the system performance on e-Land system and 1BestariNet for instance, several issues were identified which include project delayed, vendor demands extension of time, interruptions occur when changes are made to the system; inaccurate report produced by the system; output produced is unreliable and incomplete; errors in data migration; audit trails are not embedded in the system; incorrect assumptions with regards to user requirement; unutilised hardware or software, and helpdesk response was poor. This indicates that the quality of the system was not properly managed, monitored, measured and improved. The ineffective quality management has resulted in cost overrun and interruption in the service delivery processes.

4.1.6. MANAGEMENT GAPS OF ICT PROJECTS

The ICT projects in Malaysia are funded by the Federal or State Governments. Based on the audit findings, it is discovered that there is issue of management gaps in term of costs allocation, scope of work to be conducted, priorities and milestones setting, projects plans and resources monitoring, technology approaches adaptation and systems maintenance.

These management gaps resulted in ignorance of responsibility, lack of optimisation of ICT resources including the value delivery and external sourcing and exposure to ICT related risks. This issue is pertinent to the e-Land system which was developed by the Federal Government to be used by all states in doing their work but because of management gap problem, the system is delayed, several extension of times, underutilisation and so forth.

The lesson learnt is that in order to minimise the management gaps, coordination between the Federal and State Governments is important. Basic coordinating mechanism may be applied to resolve the gaps such us brainstorming, supervision, technical assistance, standardisation and motivations.

4.2   ACTIONS FOR A SUCCESSFUL IT SYSTEM IMPLEMENTION

To ensure that IT systems achieved it objectives and value for money, public agencies are recommended to take the necessary actions as follows:

4.2.1.   Public agencies should broaden the scope of work of the Research & Development (R&D) Division to address the business risks. Their roles are to focus and handle matters related to the IT especially improving the quality of services of outsourcing, adopting a suitable methodology for project monitoring, discovering techniques for risk management, establishing a Research Working Group for creating or examining prototype of the system's developed. Successful implementation of R&D findings will ultimately resulted in providing satisfactory yield to end users and increased productivity of the agency.

4.2.2.   To overcome the weaknesses in the IT system, R&D team should conduct study on the information system strategy, information management practices, the effectiveness of the system development practices, technology used and risk management process; review the design of the interface so that it is well understood and meet the users' requirements; identify key business processes that include high volume of repeated transactions that have lengthy procedures; ensure the selection and appointment of internal resources to support the IT systems for instances having close supervision on third parties performance; establish integrated knowledge, information and skills among expertise to produce the best possible information in term of technical support; and promote innovation in the system design and development.

4.2.3. In order to reduce gaps between the staff in public sector and system developer, talent pools capability should be established. The rapid changes in the global digital environment will always have a significant impact on the IT knowledge. The staff will therefore have to equip themselves with up to date technical knowledge because different technology will have different applications. The R&D team should ensure the contract clearly defined the requirements for the transfer of knowledge and secondment/attachment to the third parties organisation so as to improve the R&D and technical support; benchmarking the transfer of knowledge from system developer to public sector; ensure staff are aware on the equipment used in the IT implementation such as parts, brands, suppliers contact, market price quoted in order to avoid mismanagement or misappropriation of resources; equip the staff with relevant IT skills, training and technical requirements in handling IT system; and provide a benchmark for problem solving ability to fix a problem independently and immediately once it is occurred.

4.2.4. In certain cases, an agency may appoint consultants to give ideas on system upgrading, resilient and innovation. In this respect, the R&D should be part of the team to provide guidelines and system resilient for future development. They should also ensure that the innovations are beneficial and reliable for future development of the agencies.

4.2.5. R&D plays an important role to keep up with the current technology and the development of new knowledge, skills, methodologies, techniques and resources. A partnership with several experts like environmental modelling, system analyst, programmer, accountants, auditors, statistician, and software engineer can help develop a more advanced and reliable system application or tool.

4.2.6. A key lesson learnt is that the driving force for change is to change people's attitudes and behaviours. Users may lack relevant skills and abilities, but the management need to plan, coordinate and communicate with them to synergise expertise and knowledge. Changing the way people work can indeed be very challenging and definitely resistance is likely to occur for a variety of reasons. It is therefore important to be aware of methods to reduce resistance among end users. The primary challenges are flexibility and interactivity. Generally, there are four strategies to reduce resistance namely coordination, communication, participative strategy and performance assessment.

4.2.7. Performance assessment for end users' utilisation and the overall users' satisfaction should be conducted to determine whether the system's objectives and requirements are achieved. The results of the assessments will help in developing users' application skills and expertise which eventually removed barriers to performance. Practices and hand holding are some of the examples to develop users' application skills and expertise. A systematic training program for knowledge enhancement and advancement as well as experience sharing should be made available to staff.

5. CONCLUSIONS

5.2. ICT is an enabler in a business process, however, there are number of challenges and issues experienced by organisations in implementing ICT projects. IT failures will have a significant impact on the organisation's survival and success. Organisations need to look at the business functions supported by information systems. Analysis on the business processes should be performed and management should give due attention on the information manipulated in these processes.

5.3. IT auditing being an integral part of the audit function is important because it helps gives assurance that the IT systems are adequately managed, protected, utilised, and provide reliable information to users to achieve their intended benefits as well value for money invested. It also reduces the risk of data tampering, data loss or leakage, service disruption and poor management of IT systems. Owing to the rapid diffusion of computer technologies and the ease of information accessibility, knowledgeable and skill IT auditors are needed to ensure that effective IT controls are in place to maintain data integrity and manage access to information.

5.4. The audit findings mentioned earlier have identified significant weaknesses in the project management, implementation and monitoring which affected the performance and utilisation of the systems and thus is the quality of the government delivery service to the people. It should be noted that the common weaknesses in the IT projects among others are system underutilisation in terms of functionality, unclear roles and responsibilities among key process owner and vendor which leads to conflicts of management among vendor and business owners; lack of technical expertise and experiences in public sectors prompted outsourcing to be applied which subject to business risks; staffs are not incompetent to manage the system because training was not sufficient and responsibilities

were not properly aligned for each staff, ineffectiveness of the system performance leads to delay; ineffective quality management has resulted in cost overrun and interruption in the service delivery processes; management gaps among the government bodies resulted in ignorance of responsibility, and lack of optimisation of ICT resources.

5.5.   Lesson learnt is auditors should be more conscious of the pervasive nature of technology across the public sector. Owing to that, IT audit requires specialised knowledge and practicable ability to keep pace with current technological development. This will ensure auditors capability on carrying out the IT audit more effectively and efficiently in the government agencies. In the nutshell, ICT projects should be audited thoroughly to gauge the effectiveness of the government delivery service and prompt actions to be taken on the audit findings as an assurance to the people that the public sector is serious and trustworthy of managing public monies.

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