MANAGEMENT OF AUTHENTIC DIGITAL ACCOUNTING RECORDS IN AN ENTERPRISE RESOURCE PLANNING SYSTEM IN THE PUBLIC SECTOR OF BOTSWANA

Olefhile Mosweu
orcid.org/0000-0003-4404-9458
University of Johannesburg
olfmos@gmail.com

Abstract

Enterprise Resource Planning (ERP) systems are often implemented in the public sector value chains for purposes of improving business processes. In 2004, the government of Botswana implemented the Government Accounting and Budgeting System (GABS), an ERP to facilitate improved management of financial records. The custodian of the system is the Accountant General's Department (AGD) in the Ministry of Finance and Economic Development (MFED). This descriptive study adopted a qualitative approach and collected data through interviews and documentary analysis. The study sample was selected purposively from six (6) departments with the mandate of each as a determining factor in relation to answering the research questions. The collected data were analysed thematically in accordance with research objectives. The main purpose of this study was to investigate records management practices related to the management of authentic digital accounting records generated and stored in GABS to support the audit process in Botswana's public sector. The study revealed that although there is a national legislative and policy framework in place, it has not been operationalised through guidelines and procedures to guide the management of digital records generated by the system. Furthermore, records retention and disposal through the system have not been catered for, resulting in the system being clogged by old records since it was commissioned in 2004. Amongst others, this study recommends the development and implementation of guidelines and procedures to guide the management of records produced by the system.

Introduction

Many economies around the world have transitioned from primarily paper-based administrative systems to digital systems through the application of ICTs (Lemieux 2015:3). Digital systems include enterprise resource planning systems (ERPs). As a business system, an ERP covers various functions of an organisation and provides business benefits. Rashid, Hossain and Patrick (2002:2) describe an ERP as software that encompasses modules supporting functional areas such as accounting, financial and human resource management, amongst others. Spathis and Constantinides (2004) aver that an ERP provides some advantages to an organisation that has adopted it by way of facilitating improved decision-making through availing appropriate and timely information. Over and above that, ERP applications offer improved planning and control of operations (Spathis & Constantinides 2004). The Government Accounting and Budgeting System (GABS), the subject of this study, is an ERP implemented to manage accounting processes in the Accountant General's Department (AGD) in the public sector of Botswana.

According to Spathis and Constantinides (2004), the accounting module is the heart of an ERP system as more often than not, it incorporates applications such as general ledger, accounts receivable and payable, fixed assets, cash management, cost control and budgeting. Transactions undertaken with the use of ICTs for operational business processes lead to the generation of digital records (Wamukoya & Mutula 2005). Ngoepe and Ngulube (2014) note that there is a symbiotic relationship between records management and the entire accounting function because the accounting cycle begins with the creation of a record, and such records need to be managed in a systematic manner in order for them to facilitate sound decision-making (Kemoni, Ngulube & Stilwell 2007). Some of the consequences of poor digital records management include data loss, lack of compliance with legal requirements, e-discovery requests and low productivity due to time wasted looking for records that cannot be found (Hilinski 2017). Thus, organisational records need protection if they are to serve their purpose (Isa 2009).

Managing digital records generated in ERP systems like GABS comes with challenges, as they are originally designed to manage records after creation and this poses ongoing problems related to maintaining their authenticity, reliability, usability, and integrity (ICA 2013). Such challenges can be addressed, ideally at the point of creation, by identifying and declaring the records to be captured from the business system into a secure records management system (Kastenhofer 2016). Policy frameworks on digital records management, including support provided by appropriate laws, are handy in that regard. Generally, the challenges associated with managing digital records generated in business systems can be dealt with from system design stage and that is more feasible with the involvement of records management from the conceptual stage of the system. According to the University

of Wisconsin (2019), the following are some of the factors to be considered at the analysis and design stage:

- Have records creation/retention needs been identified as a 'fit' or a 'gap'?
- As information workflow is modelled in the new system, has the potential needs for records retention been modelled as a component of the life cycle of data in the new system?
- Are procedures in place to prove the authenticity of the records?
- Can the records be exported to another system? Can the records be purged automatically from the system in compliance with the retention schedule?
- Has a records management programme for data and business processes been designed?

The main purpose of this study was to investigate the management of authentic digital records generated by GABS to support the auditing process in Botswana's public sector. First, it presents the context of the study, followed by the research design the study selected. Then it proceeds to present the findings guided by the methodology selected, followed by conclusion and recommendation at the end.

Context of the study

The government of Botswana has a clear road map about the use of ICTs in the delivery of public services. It is this platform that the government endeavours to propel Botswana to be an active player in the knowledge economy (Government of Botswana 2012). There are national policy and legal frameworks that support Botswana's march and participation in the knowledge economy. The policy frameworks include Vision 2036, National Development Plan 12, E-Government Strategy, and National ICT Policy commonly known as Maitlamo Policy (Government of Botswana 2007; 2012; 2016). The legal framework principally includes the National Archives and Records Services Act, the Electronic Records (Evidence) Act and the Electronic Communication and Transactions Act (Government of Botswana 1978). The legal and policy framework provides fertile ground for Botswana to be a role player in the knowledge economy by facilitating e-government services.

The study location is the AGD in the Ministry of Finance and Economic Development. The AGD is the principal study location and custodian of GABS. The Public Finance Management Act gives the department the responsibility to compile and manage government accounts, keep custody and safeguard public moneys, and their disbursement (Government of Botswana 2011). The Department

of Corporate Services coordinates support services in the MFED. It employs and trains staff for the ministry as a whole and it is where the ministry's records managers are based. The Department of Internal Audit (DIT) regularly performs internal audits in government entities and was included because its mandate includes an audit of implemented business systems. The DIT was chosen to take part in the study because it is responsible for coordinating the computerisation of government projects. It also maintains the ICT infrastructure, which hosts implemented information systems, including, GABS. The Department of Botswana National Archives and Records Services (BNARS) was selected because it is mandated to coordinate the management of public sector records (Government of Botswana 1978). Standards, procedures and guidelines for the management of public sector records regardless of form are the responsibility of BNARS towards the rest of government. The Office of the Auditor General of Botswana (OAGB) is included as it is responsible for regularity auditing of public sector bodies in terms of the PFMA and the Public Audit Act (Government of Botswana 2011b:2012). The Constitution of Botswana also mandates the OAGB to ensure that reasonable precautions are taken to safeguard the collection, receipt, issue, custody and disbursement of public monies and supplies in accordance with applicable laws and instructions (Government of Botswana 1966; Moloi 2009). The above departments were selected because they were relevant in the endeavour to resolve the research question.

Government Accounting and Budgeting System

GABS is an ERP largely used for the management of government accounting functions such as budget administration, general ledger, payables, receivables and cash management. Being a computerised information system, GABS generates digital accounting records because of the performance of business functions (ICA 2013). The MFED, through the AGD, specifically addresses the following:

a. Increase the ability to undertake central control and monitoring of expenditure and receipts in the ministries and departments.

b. Provide up-to-date and online information on the government's cash position, economic, financial and operational performance.

c. Eliminate the duplication of maintaining the same information.

d. Ensure faster processing of budget preparation, closing of accounts and processing of other transactions.

e. Enhance the ability to demonstrate accountability to donors and to the public by having a proper audit trail of transactions in the system (OAGB 2007:6).

Prior to the implementation of GABS, the then Ministry of Finance and Development Planning (MFDP) had implemented a computerised system in the 1970s (Office of the Auditor General 2007). The system had a number of inherent constraints and disadvantages, which restricted its effectiveness. It was difficult and expensive to maintain and support its hardware and software. The system also failed to provide the required functionalities in the areas of budgeting, revenue, computerised ledgers, cash flow, public debt and ministerial data entry. The Office of the Auditor General (2007) points out that because of the aforementioned weaknesses in the system, many government accounting processes were performed manually.

According to Office of the Auditor General (2007), the MFDP replaced the system with GABS in 2004, to allow for decentralised data entry, reliability, accuracy and generation of timely information, and to provide additional functionality for work done manually in the old system. GABS catered for cash-based and accrual accounting, budgetary control and the desired system management information. What follows next is the conceptual framework used to guide the study.

Conceptual framework

The purpose of a conceptual framework is to define the research problem, establish theoretical coherence, organise the research design and implementation, and frame conceptual conclusions (Berman 2013). A conceptual framework is the glue that holds the study together such that without it, the whole research design crumbles (Ngulube 2018). The conceptual framework guiding this study resonates well with policy requirements for managing records, which include requirements for a record-keeping and system design (paper and electronic), the standards for financial records management, skills and competencies for managing records, and user responsibilities. This study is concerned with management activities for records management, which include but are not limited to guidance in the form of the legal, policy framework and procedures, records retention and scheduling, and records safety and security. The purpose of the legal and policy framework is to provide an environment that is conducive to proper records management (Okello-Obura 2011). Once records are created, they cannot be kept forever and therefore records retention and disposal decisions have to be made during the life of a record (International Records Management Trust 2009). Since business systems may lack records management functionalities such as being able to systematically dispose of records in the system right from system implementation, it should be known whether the system secures records by not allowing them to be overwritten. ISO 15489-1 (ISO 2016) requires that records should be stored on media that ensure their usability, reliability, authenticity and preservation for as long as they are needed. Records need to be protected against unauthorised access, loss or

destruction, and theft and disaster. The research objectives for the study were thus informed by the conceptual framework for the study.

Purpose and objectives of the study

In order to resolve the research problem, this study asked the following research question: "How are authentic digital records generated and stored in GABS managed in order to support the audit process in Botswana's public sector?" It adopted the following sub-questions:

a. What legislative and policy frameworks are in place to support the use of ICTs in public service delivery in Botswana?

b. What are the types of records generated and stored in GABS?

c. How are the records captured into the system?

d. How are records retained and disposed of in the system?

e. What security measures are in place to protect the authenticity of records generated and stored in GABS?

Research methodology

This study was a descriptive, qualitative study situated within an interpretivist research paradigm. According to Lambert and Lambert (2012), qualitative descriptive studies largely follow naturalistic inquiry and thus study things in their natural setting in the context of the research arena. Qualitative research is often based on interpretivism (Thanh & Le Thanh 2015:25) and the following are its characteristics: it is mainly concerned with the subjective meanings through which people interpret the world and construct reality through language, images and cultural artefacts in particular contexts; and social events are from the perspective of the actors themselves independent from the researcher's preconceptions. Purposive sampling was used to first select the departments taking part in the study, and, secondly, to select the study participants from the BNARS, the DIA, the DIT, the AGD, the Department of Corporate Services within the MFED and the Office of the Auditor General of Botswana (OAGB). The study participants included auditors, ICT specialists and records management professionals from the said departments. Purposive sampling is common in descriptive qualitative studies (Lambert & Lambert 2012; Kim, Sefcik & Bradway 2017). Data were collected through unstructured interviews and documentary analysis, which involved a scrutiny of reports, legislation, published journal papers and internet sources. Interview questions were emailed to participants who in turn answered the questions and emailed back their responses. Data collection through emailed interview questions is acceptable in qualitative descriptive research (Gibson 2010; Walker 2013; Hawkins 2018). The advantage of this method is that it saves both

time and money in transcription costs (Hawkins 2018). Study participants expressed discomfort with their voices being recorded on tape, hence email interviews were used as an alternative. Where there was a need for clarity emanating from responses, follow-up was done via email communication and through telephone calls. Data were analysed thematically as guided by research objectives, while data collected from documents were subjected to content analysis. According to Kim et al (2017), content analysis is a common undertaking in qualitative descriptive research. The findings of the study follow immediately after this section.

Findings

The main purpose of this study was to investigate records management practices related to the management of authentic digital accounting records to support the auditing process in Botswana's public sector. The findings of the study have been presented in line with the research objectives of the study, the themes of which translated into policy frameworks in support of the use of ICTs in public service delivery, types of records generated and stored in GABS, records captured in the system, and the retention and disposal of digital records in the system. In line with the research questions of the study, findings on the legislative and policy frameworks in place to support the use of ICTs in public service delivery in Botswana are presented first.

Policy framework in support of the use of ICT

A national policy framework is required to guide the management of records, including policies and legislation. The National ICT Policy of Botswana endeavours to utilise the potential of ICTs to improve service delivery and to provide a national framework for the development of IT initiatives in the country (Government of Botswana 2007; Mosweu & Kenosi 2018). The overall objectives of the policy, commonly known in Botswana as the Maitlamo Policy, are to create an enabling environment for the growth of an ICT industry in the country; provide universal service and access to information and communication facilities in the country; and make Botswana a regional ICT hub to make the country's ICT sector globally competitive (Government of Botswana 2007). The Department of Information Technology (DIT) within the Ministry of Transport and Communications implements the policy. Through the policy, Botswana seeks to be a globally competitive knowledge and information society where lasting improvement in social, economic and cultural development is achieved through the effective use of ICTs (Government of Botswana 2012). However, an analysis of the policy suggests that it is too general to guide the management of digital records generated with ICTs in the public sector. Mokone (2015) notes that there is a need for organisations to establish IT policies to guide the management of all digital records. Myler and Broadbent (2006:3) observe that "IT policy would clearly set out the organisation's

expectations regarding retention, individual roles and responsibilities, ownership, control, classification of different categories of content and privacy."

Other than the National ICT Policy, the Government of Botswana (2012) issued a National E-Government Strategy, through which the nation of Botswana is to be accelerated into a knowledge-based society. The main aim of the strategy is to move all appropriate government services online with the aim of dramatically improving the convenience, quality and efficiency of public sector service delivery. The strategy is also meant to assure the country's economic diversification and sustainable economic development. It promotes the use of integrated information systems to address public service delivery challenges (Government of Botswana 2012). The deployment of an ERP such as GABS was meant to speed up delivery of services related to the management of government finances and to enable the availability of records for accountability and reporting purposes. The E-Government Office, also in the Ministry of Transport and Communication, drives the e-Government Strategy.

Regarding legislation, the National Archives and Records Services Act of 1978 was enacted to guide public sector records management (Government of Botswana 1978). The Act was silent on the management of digital records, and although it was amended in 2007 to extend the definition of a record to include digital records, it is still too weak to provide guidance on the management of such records in the public sector. The Act establishes the BNARS and outlines the roles and responsibilities of its Director towards public sector archives and records management as a function within the public sector. The BNARS falls under the Ministry of Youth Empowerment, Sport and Culture Development. Other researchers have also concluded that archival legislation, policies and procedures in Botswana lack the capacity to guide the management of digital records (Ngoepe & Keakopa 2011; Mosweu & Ngoepe 2018; Moatlhodi & Kalusopa 2016). Comparatively, the National Archives and Records Services of South Africa, is more explicit when it comes to digital records management provisions (National Archives and Records Services 2006; Keakopa 2007). The guidelines stipulate that digital records should be managed with records management applications as part of the Integrated Document and Records Management System that manage records in all formats in an integrated manner (National Archives and Records Services 2006:7). Generally, in the ESARBICA region, archival legislation failed to address issues related to the management of digital records (Mnjama 2005; Kemoni 2009). In view of the aforementioned, Ndenje-Sichalwe, Ngulube and Stilwell (2011) posit that archival legislation should provide adequately for such digital records and outline how to deal with their creation, accessibility and disposal.

Another piece of legislation that regulates financial records is the Public Finance Management Act (PFMA) which demands accountability for public monies

(Government of Botswana 2011). The Act prescribes that the Accountant General, a public officer entrusted with the compilation and management of government accounts, custody and safety of public moneys, and its disbursement, be appointed. The Act also empowers the Auditor General to audit public accounts within six months after the close of each financial year. This presupposes that complete and accurate accounting records are kept so that they can be perused by auditors when they undertake financial audits. Ngoepe (2012) concludes that a proper records management regime is a critical element for the preparation of financial statements in organisations as it facilitates the verification of the completeness and accuracy of data reported in the financial statements. The next section presents findings on the types of records generated by GABS.

Types of records generated and stored in GABS

The second research question sought to find out what types of records were created and stored in the system. The findings revealed that records such as journals, receipts, vouchers, financial reports and invoices are generated and stored in GABS. Furthermore, records of all companies and suppliers that do business with the government are created and stored in the system in the form of a company profile. A company's profile must first be captured on the system; otherwise, it cannot be paid for services rendered if its profile is not created in the system. The digital accounting records in the system are actually classified into categories (modules) underpinning the different transactions and these are tabulated at Table 1:

Table 1: Types of records generated in GABS

GABS Module	Examples of records generated
Payables	-Invoice register, Invoice batches, Expenditure reports, Payment registers, Payment details to suppliers, Outstanding imprest payments and listing reports
Receivables	-Auction reports, receipts from revenue, advance overpayments, police fines and deductions of salary overpayments
Budget	Commitment and expenditure
Expenditure	Estimated budgeted against collected revenue, recurrent expenditure (budget actual expenditure), development votes (budget against actual expenditure)

Source: Field data

Capturing of records in GABS

When organisations perform their mandate, they create records as evidence of the performance of the mandate. Those responsible therefor can use such records to ensure accountability, including enabling organisations to meet legal, regulatory and

financial requirements, and to protect their assets and rights (Ndenje-Sichalwe et al 2011). The performance of financial management functions in GABS results in records being created and these are captured into the system so that they serve as evidence of the performance of the same functions. The capturing of records is the work needed to manage the information as a record (Kastenhofer 2016). Study participants were asked how digital accounting records were captured into GABS and they unanimously asserted that users directly captured them on the system. In addition, some records are imported into the system from other systems that interface with GABS. These systems are from other government bodies. Examples of the systems from which GABS import digital records include the following:

- Human Capital System used for government personnel data and records management
- National Identity Registration System used for the management of the registration process of citizens of Botswana
- Vehicle Registration and Licensing System (VRLS) used for managing processes related to vehicle registration
- Driver Licensing System (DLS) used for driver's licensing and management
- Central Medical Stores System (CMS) used for the management and the storage and distribution of centralised health care medicines to health facilities across the country
- Government Payroll, Pensions and Passages System (GPPPS) used for the management of payroll, processing of gratuities and pensions, Electronic Funds Transfer to Bank of Botswana and pay-as-you-earn (PAYE) tax forms processing
- Value-Added Tax System used to manage value-added tax (VAT) in conjunction with Botswana Unified Revenue Service (BURS)
- Social Benefits and Reconciliation System (SBRS) used for the payment of old-age pensions
- Ministry Investment, Trade and Industry's Management Information System (MTIMIS) used for trade licensing, issuance of rebate certificates and export/import permits and registration, investigation and resolution of consumer complaints.
- Fleet Tracking and Maintenance Management System (FTMMS) used for the tracking of the entire government fleet

- Government Bookshop Online System (GPPS) used to transact publication orders and sale of government publications

Other records are imported from banking systems and uploaded onto GABS. The participants added that GABS does not allow records to be scanned into it. The international records management standard, ISO 15489-1 (2016), provides the criteria for the organisation to create and maintain authentic, reliable and usable records. These criteria, among others, are to: determine the kind of records created in each business process and information needs to be included in the records; decide the form and structure in which records should be created and captured, and the technologies to be used; determine the metadata to create with records and through records processes and how the metadata will be linked and managed and decide on the organisation of records so as to support requirements for use. The section that follows presents the study findings on the retention and disposal of records in the system.

Records disposal in GABS

Records serve a purpose in an organisation, after which they can be disposed of. This means that records are not supposed to be kept beyond their usefulness to the creating agency. The National Archives of UK (2012) cautions that in order for organisations to evade retaining records for longer than required for business purposes, organisations need to have records disposal policies. The retention and disposal of records is an integral part of a records management programme. It is undertaken with records retention and disposal schedules during the appraisal of records. A records retention and disposal programme is a very important aspect of records management in an organisation (Chinyemba & Ngulube 2005). According to Ricks, Swafford and Gow (1992:75-76), the benefits records retention and disposal scheduling can be summarised as follows:

A records retention programme provides a timetable and consistent procedures for maintaining the organisation's records, moving the records to inactive storage when appropriate and destroying records when they are no longer valuable to the organisation.

The timely disposal of digital records in particular is beneficial as it would otherwise require migration and further management, saving time and expenses (State Archives and Records of New South Wales Government 2015). Study participants were asked whether records retention schedules have been issued to regulate digital records in GABS and whether records retention periods have been configured into GABS, bearing in mind that the AGD has issued Financial Instructions and Procedures that specify records retention periods for specific accounting records as

part of their management over time (Government of Botswana 1993). The participating records management at both BNARS and the MFED indicated that a records retention schedule has not been configured into GABS. They also pointed out that the Financial Instructions and Procedures document was used for the disposal of records in paper format.

This study discovered that BNARS has issued a records retention and disposal schedule for common records across government ministries and departments, including financial records. Other than that, the AGD issued some financial instructions and procedures, which contain the records retention periods. It is, however, notable as a business system, that GABS does not have a records retention and disposal schedule configured into it as it would have had it been a record-keeping system. The absence of a well-defined records retention and disposal schedule suggests that when GABS was designed, records management professionals were not involved from the onset and even when the system was upgraded. Secondly, this suggests that BNARS was also not involved at the design stage, although legally it is the agency responsible for public sector records management. Ndenje-Sichalwe et al (2011) assert that systems managing records should be able to facilitate and implement decisions on records retention and disposal.

As a business system, GABS was not designed like a record-keeping system which is configured with records retention and disposal schedules. Records retention and disposal schedules aid the records appraisal process. Although the Botswana National Archives and Records Service's Records Management Procedures Manual calls for digital records to be systematically used throughout their lifecycle (BNARS 2009), there is no guidance on how that is to be done. ICT specialists also responded to the question on records retention and disposal in GABS. One participant (ICT2) did not know what a records retention schedule was while another (ICT3) said that GABS did have a records retention and disposal schedule configured into the system. This means that the records captured into the system merely reside in it and if they are not disposed of, they will just sit and clog the system. Actually, digital records in GABS have resided in the system since it was commissioned in 2004. Ideally, the records could have been appraised and those that are archival in nature be archived. According to the Ministry of Transport and Communication Newsletter (2017), GABS does not have archiving capabilities and consumes a lot of data storage because of a lack of archiving and warehousing. As a result, "data from as far as the year 2004 is stored, which renders the system slow" (Ministry of Transport and Communication Newsletter (2017).

Since GABS was implemented, digital accounting records have resided in the system. It would seem this is not a good option for preservation as the system has become overloaded with old data or records and this often makes the system slow.

Although government departments and ministries in Botswana have computerised some of their operations, they have done so without a framework for managing their digital records. In view of the absence of an e-records management policy and programmes within government, there is an eminent danger that records generated may not be retained and preserved as digital archives (Moloi 2009). To bring this point home, the ICA/IRMT (2016) avers that the maintenance of the integrity of digital records is a massive challenge because key stakeholders such as senior managers, programme planners, IT staff, legal specialists and development planners, are often not aware of the risks posed by technology. They often assume that technology would solve the problems, while, in fact, it exacerbates them.

The National Archives and Records Services Act of Botswana regulates the disposal of public records. In terms of records destruction, it prescribes that public records should not be destroyed without the authorisation of the director of BNARS. That aside, although the AGD uses the Financial Instructions and Procedures in which retention periods for accounting records have been stipulated, the same retention periods have not been configured into GABS (Mosweu 2018). The State Archives and Records of New South Wales Government (2015) in Australia encourages the disposal of records regardless of whether they have been generated by a digital record-keeping system or not. Assigning records retention periods at creation, for records with long-term or short-term value ensures that disposal actions are performed timeously. It is important that the retention period for digital records in particular be decided at creation, as the system can become cluttered with records, something which complicates searches and wastes resources (State Archives and Records of New South Wales Government 2015). The next section presents findings on the security measures in place to protect the authenticity of records generated and stored in GABS.

Security of records in GABS

Security of records is the pillar for accountability and confidentiality of information in an organisation. Records that are protected, are deemed trustworthy because the integrity of the information and systems is ensured (Rogers 2016). In addition, Rogers (2016) adds that key security measures such as login username and password authentication protect the privacy of records and maintain their confidentiality. MOREQ (2001:21) also posits that, "organizations must be able to control who is permitted to access records and in what circumstances, as records may contain personal, commercial or operationally sensitive data." The international records management standard, ISO 15489-1 (2016), stipulates that records should be protected from unauthorised alteration and deletion by managing the metadata of the record itself.

The study participants (ICT professionals) were asked to state how records generated and stored in GABS were secured and thus preserved for the future, and their response was that the DIT has an Institutional Disaster Plan for the security of accounting records, which caters for their safety should there be some disastrous event. It was part of the overall institutional disaster management strategy for data in the various government business information systems implemented across government. According to the Government of South Australia (2007:9), "a counter disaster management plan for records should take place in the framework of a government agency's business continuity plan. Although the DIT has done well to have an institutionalised disaster management plan to safeguard records created and stored in GABS, a worrisome factor is that accounting records are stored within the DIT's two main data centres in Gaborone, i.e. within the offices of the DIT. This is bad practice as the department can still lose its vital data should a disaster strike the two data centres. According to the Australian Capital Territory (2008:7), remote storage is ideal for vital records as part of business continuity planning. Ngoepe, Mokoena and Ngulube (2010) in a study that focused on security, privacy and ethics in digital records management in the public sector of South Africa, cautioned that without a proper information security framework and professional code of ethics that embrace digital records management, government departments could be vulnerable to financial losses due to litigations resulting from invasion of privacy, unethical behaviour and hacking of records systems. The study's recommendations as informed by findings are offered in the next section.

Conclusion and recommendations

GABS was implemented to manage accounting processes through the system. The system has performed as expected functionally. but in terms of management practices for records generated and stored in the system, some weaknesses have been established through this research. This is not surprising because GABS, being an ERP system was not designed as a system with records management functionalities. For example, records disposal through the system has not been catered for and the storage for backed up digital records is not ideal as they are stored on the premises of the DIT, instead of in a remote storage away from the premises. One other notable factor revealed by this study was that there is a lack of appropriate guidelines and procedures to guide the management of digital accounting records specifically and digital records in general. The collaboration of role players in the management of public sector records (BNARS), coordination of computerisation projects (DIT) and custody of government accounting processes (AGD) can ensure a better environment for the management of digital records in the system. Collaboration for the management of digital records has also been supported by the National Archives and Records Administration of the USA, which calls for ICT specialists such as chief information officers, chief data officers, chief technology officers, IT enterprise architecture staff and archives and records

management professionals to work together to find solutions for digital records management (NARA 2018). Keakopa (2002) has also called for synergy to be created between archivists, records managers, legal staff, programme managers, clients and counterparts in IT for the development of record-keeping systems. ICT experts are knowledgeable when it comes to systems design, while records management professionals are records gurus. Legal experts can give insights into legal implications related to creating systems that manage authentic digital records.

This study found a number of limitations related to the management of digital accounting records generated and stored in GABS. It recommends the following:

- BNARS should lobby the government through the Ministry of Youth Empowerment and Culture Development to amend the archival legislation to enable it to provide a guiding framework for public sector digital records management. The department can strengthen its case by mounting a workshop with ministry principals to raise awareness of the need for the amendments. That said, this study acknowledges that effecting an amendment to a piece of legislation is a long process and existing gaps in the legislation can be addressed by adopting best practices in archives and records management, such as the domestication and adoption of standards on digital records management.

- BNARS should develop and implement procedures and guidelines for the management of digital records generated by business systems. These can be developed in collaboration with ICT professionals and industry experts. The guidelines and functional requirements for records in business systems as set by ISO 16175-3 provide specific guidelines for managing records digital records generated in business systems (ISO 2010).

- BNARS should be involved at the design of business systems to be deployed in the public service so that records management functionalities can be catered for at the initial stage of development. Such functionalities would include the assigning of records retention periods at the design stage of business systems.

- In order to maintain the authenticity of records in GABS, the AGD should consider integrating the system with truly digital records management systems where they have been implemented.

- The AGD should consider migrating dormant records in the system to the data centre owned by the DIT. This will debug the system and improve its

operational efficiency. It is common for service delivery to be delayed when the system is "down" and clients cannot be favourably assisted.

- Currently, the data centres for data backup are located within the two offices of the DIT in the City of Gaborone. The DIT should consider remote storage away from the offices because under the current circumstances, they are still vulnerable to loss and damage should some disaster strike.

References

Al-Mashari, M. & Zairi, M. 2000. Revisiting BPR: a holistic review of practice and development. *Business Process Management Journal* 6(1): 10-42.

Australian Capital Territory. 2008. Guideline for records management – business continuity and records management. Available at: https://www.territoryrecords.act.gov.au/__data/assets/pdf_file/0006/472704/Guideline-No-8-Business-Continuity-August-2008.pdf (Accessed 11 March 2019).

Berman, J. 2013. Utility of a conceptual framework within doctoral study: a researcher's reflections. *Issues in Educational Research* 23(1): 1-18.

Botswana National Archives and Records Services. 2009. *Records Management Procedures Manual*. Gaborone: BNARS.

Chinyemba, A. & Ngulube, P. 2005. Managing records at higher education institutions: a case study at the University of KwaZulu-Natal. *South African Journal of Information Management* 7(1): 1-20.

Davis, M. 2011. Writing an empirical report. Available at: https://www.researchgate.net/publication/312963861_Writing_an_Empirical_Report (Accessed 29 April 2019).

Gibson, L. 2010. Realities toolkit: using email interviews. Available at: http://eprints.ncrm.ac.uk/1303/1/09-toolkit-email-interviews.pdf (Accessed 16 April 2019).

Government of Botswana. 1978. *National Archives and Records Services Act*, Gaborone: Government Printer.

Government of Botswana. 1993. *Financial Instructions and Procedures*, Gaborone: Government Printer.

Government of Botswana. 2007. National Information and Communication Policy. Gaborone: Government Printer

Government of Botswana. 2011. *Public Finance Management Act*. Gaborone: Government Printer.

Government of Botswana. 2012. *E-Government Strategy*. Gaborone: Government Printer.

Government of South Australia. 2007. Records management disaster planning. Available at: https://government.archives.sa.gov.au/sites/default/files/20120125%20 Records%20Ma nagement%20Disaster%20Planning%20%20Final%20V1.2_Copy.pdf(Acc essed 8 May 2018).

Hawkins, 2018. The practical utility and suitability of email interviews in qualitative research. *The Qualitative Report* 23(2): 493-501.

Hilinski, L. 2017. Poor records management: its causes, consequences, and how to prevent it. Available at: https://www.recordnations.com/2017/08/poor-records-management-causes-consequences-prevent/ (Accessed 16 April 2019).

ICA. 2013. Principles and functional requirements for records in electronic office environments: recordkeeping requirements for business systems that do not manage records. Available at: https://www.ica.org/sites/default/files/10.%20Recordkeeping%20Requirement s%20for%20Business%20Systems%20that%20do%20not%20manage%20Re cords.pdf (Accessed 17 April 2019).

International Standards Organisation (ISO). 2010. ISO 16175-3: *Information and documentation -- Principles and functional requirements for records in electronic office environments -- Part 3: Guidelines and functional requirements for records in business systems.* Geneva: ISO.

International Records Management Trust. 2009. Managing the creation, use and disposal of electronic records. Available at: https://www.irmt.org/documents/educ_training/term%20modules/IRMT%20T ERM%20Module%203.pdf (Accessed 28 April 2019).

International Standards Organisation. 2016. ISO *15489-1: Information and Documentation - Records Management.* Geneva: ISO.

Isa, A.M. 2009. Records management and the accountability of governance. PhD Thesis. University of Glasgow, Glasgow. Available at: http://theses.gla.ac.uk/1421/1/2009matisaphd.pdf (Accessed 15 September 2018).

Kastenhofer, J. 2016. Identifying digital records in business systems: the definition of a problem. *Journal of the South African Society of Archivists* 49: 1-13.

Keakopa, S. 2007. Policies and procedures for the management of electronic records in Botswana, Namibia and South Africa. *ESARBICA Journal* 26: 70-82.

Kemoni, H.N. 2009. Management of electronic records – review of empirical studies from the Eastern, Southern Africa Regional Branch of the International Council on Archives (ESARBICA) region. *Records Management Journal* 19(3): 190-203.

Kemoni, H.N., Ngulube, P. & Stilwell, C. 2006. Public records and archives as tools for good governance: reflections within the records keeping Scholarly and practitioner communities. *ESARBICA Journal* 26: 3-19.

Kim, H., Sefcik, J.S. & Bradway, C. 2017. Characteristics of qualitative descriptive studies: a systematic review. *Research in Nursing & Health* 40(1): 23-42.

Lambert, V.A. & Lambert, C.E. 2012. Qualitative descriptive research: an acceptable design. *Pacific Rim International Journal of Nursing Research* 16(4): 255-256.

Lemieux, V.L. 2015. One step forward, two steps backward? Does e-Government make governments in developing countries more transparent and accountable? Available at:
https://openknowledge.worldbank.org/bitstream/handle/10986/22496/One0ste p0forwa0ent0and0accountable0.pdf?sequence=1&isAllowed=y (Accessed 5 August 2017).

Mnjama, N. 2005. Archival landscape in eastern and southern Africa. *Library Management* 26(8/9): 457-470.

Moatlhodi, T. & Kalusopa, T. 2016. An assessment of e-records readiness at the Ministry of Labour and Home Affairs, Gaborone, Botswana. *Mousaion* 34(3): 1-22.

Mokone, O. 2015. Records management and legal compliance to regulatory laws and international standards at Morupule Coal Mine, Botswana. Masters Dissertation. University of Botswana, Gaborone.

Moloi, J. 2009. E-records readiness in the public sector in Botswana. *ESARBICA Journal 28*: 105-127.

Myler, E. & Broadbent, G. 2006. ISO 17799: standard for security. *Information Management Journal* 40(6): 43-52.

MOREQ. 2001. Model requirements for the management of electronic records. Available at:
https://ec.europa.eu/idabc/servlets/Doc1faf.pdf?id=16847 (Accessed 9 December 2019).

Mosweu, T.L. & Kenosi, L. 2018. Implementation of the court records management system in the delivery of justice at the Gaborone Magisterial District, Botswana. *Records Management Journal* 28(3): 234-251.

Mosweu, O. & Ngoepe, M. 2018. *Legal framework for auditing public sector accounting records in the digital environment in Botswana*. In Ngoepe, M. & Fombad, M. (eds). *Proceedings of 9th ProLISSA conference*, 5-7 March, Pretoria, South Africa: 149-161.

Mosweu, O. 2018. A framework to authenticate records in a Government Accounting System in Botswana to support the auditing process. PhD Thesis, University of South Africa, Pretoria.

National Archives and Records Administration. 2018. Criteria for successfully managing permanent electronic records. Available at:

https://www.archives.gov/files/records-mgmt/2019-perm-electronic-records-success-criteria.pdf (Accessed 6 May 2018).

Ndenje-Sichalwe, E., Ngulube, P. & Stilwell, C. 2011. Managing records as a strategic resource in the government ministries of Tanzania. *Information Development* 27(4): 264-279.

Ngoepe, M. & Keakopa, S.M. 2011. An assessment of the state of national archival and records systems in the ESARBICA region. *Records Management Journal* 21(2): 145-160.

Ngoepe, M., Mokoena, L. & Ngulube, P. 2010. Security, privacy and ethics in electronic records management in the South African public sector. *Esarbica Journal* 29: 36-66.

Ngoepe, M.S. 2012. Fostering a framework to embed the records management function into the auditing process in the South African Public Sector. PhD Thesis. University of South Africa, Pretoria. Available at: http://uir.unisa.ac.za/bitstream/handle/10500/15418/thesis_ngoepe_ms.pdf?sequence=1 (Accessed 10 February 2016).

Ngoepe, M. & Ngulube, P. 2014. The need for records management in the auditing process in the public sector in South Africa. *African Journal of Library, Archives and Information Science* (24)2: 135-150.

Ngulube, P. 2018. Overcoming the difficulties associated with using conceptual and theoretical frameworks in Heritage Studies. Available at: https://www.researchgate.net/publication/320471290_Overcoming_the_Difficulties_Associated_with_Using_Conceptual_and_Theoretical_Frameworks_in_Heritage_Studies (Accessed 28 May 2018).

Office of the Auditor General of Botswana. 2007. *Performance Audit Report No. 8 on the audit of Government Accounting and Budgeting System.* Gaborone: Government Printer.

Okello-Obura, C. 2011. Records and archives legal and policy frameworks in Uganda. Available at: http://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=1640&context=libphilprac (Accessed 25 July 2018).

Rashid, M.A, Hossain, L. & Patrick, J.D. 2002. *The evolution of ERP systems: a historical perspective.* https://faculty.biu.ac.il/~shnaidh/zooloo/nihul/evolution.pdf (Accessed 15 March 2019).

Ricks, B., Swafford, A. & Gow, K. 1992. *Information and image management: a records management systems approach.* Cincinnati: South-Western publishing Co.

Rogers, C. 2016. A literature review of authenticity of records in digital systems: from 'machine readable' to records in the cloud. Available at: http://oaji.net/articles/2017/3932-1484337719.pdf (Accessed 23 March June 2019).

Spathis, C. & Constantinides, S. 2004. Enterprise resource planning systems' impact on accounting processes. *Business Process Management Journal* 10(2): 234-247.

State Archives and Records of New South Wales Government. 2015. Implementing a retention and disposal authority. Available at: https://www.records.nsw.gov.au/recordkeeping/advice/retention-and-disposal/implementing-a-retention-and-disposal-authority (Accessed 17 March 2019).

Thanh, N.C. & Le Thanh, T.T. 2015. The interconnection between interpretivist paradigm and qualitative methods in education. *American Journal of Educational Science* 1(2): 24-27.

University of Wisconsin. 2019. Records management guidelines for information technology systems. Available at: https://www.wisconsin.edu/general-counsel/legal-topics/records/records-management-resources/records-management-guidelines-for-information-technology-systems/ (Accessed 29 April 2019).

Walker, D. 2013. The internet as a medium for health service research. Part 1. *Nurse Researcher* 20(4): 18-21.

Wamukoya, J. & Mutula, S.M. 2005. E-records management and governance in East and Southern Africa. *Malaysian Journal of Library & Information Science* 10(2): 67-83.