MAKERERE UNIVERSITY BUSINESS SCHOOL

ASSESSING SUSTAINABILITY OF ENTERPRISE RESOURCE PLANNING SYSTEMS

IN SECURITY GROUP UGANDA LIMITED

By

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PLAN B
DECLARATION

I, Sam Kigozi, certify that this is my original research work, and has never been presented to any other Institution or Higher Learning or Research Institute for any award.

Signature

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APPROVAL

I certify that this research report has been submitted with our approval as university supervisors.

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DEDICATION

This dissertation is dedicated to my wife Mrs. Viola Kigozi and our children.
AKNOWLEDGMENT

I convey my special thanks to my supervisor under whose guidance I have done all this work. I thank you for your precious time that you have given me and always to accommodate my mistakes. I would like to express my heartfelt gratitude to my classmates and colleagues at work for their love and encouragement.
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LIST OF ABBREVIATIONS

APA American Psychological Association
DTPB Decomposed Theory of Planned Behavior
ERP Enterprise Resource Planning
ETL Extract, Transform and Load
HCI Human Computer Interaction
IDT Innovation Diffusion Theory
ISO International Standards Organisation
ITAM Information Technology Adoption Model
MEASUR Methods of eliciting, analyzing, and specifying user requirements
O&M Operation and Maintenance
OS Organizational semiotics
PD Participatory Design
PMS Performance management system
QBL Quadruple Bottom Line
SDLC Systems Development Life Cycle
SIS Sustainable Information System
SPSS Statistical Package for Social Scientists
TAM Technology Acceptance Model
TBL Triple Bottom Line
TPB Theory of Planned Behaviors
TRA Theory of Reasoned Action
USAID United States Agency for International Development
UTAUT Unified Theory of Acceptance and Use of Technology
ABSTRACT

The purpose of this study is to examine the management of ERP project sustainability in Security Group Uganda Limited. The problem was that sustainability is a big challenge as regards the system at this company. Five years since this system was installed in the firm, most employees do not know how to use the system, and it is viewed as simply an accounting information system. Evidence from 2017 shows that only 20% of the staff have access to, and actually use the system. Hence the objectives of the study were to assess ERP systems sustainability in Security Group Uganda, to ascertain the challenges to sustainability of ERP systems projects in Security Group Uganda, and to find out the strategies for managing the challenges to sustainability of ERP systems in projects Security Group Uganda.

The cross-sectional research design was used and data was collected from a sample size of 92 Security Group employees at all levels of management. Data was collected using a closed ended questionnaire. Findings show that there are moderate levels of management of ERP systems sustainability in Security Group Uganda. This is despite the recognition that ERP systems are important in every organisation. The study also shows that there are several cited challenges associated with the development of ERP systems and these challenges are mostly rooted in failures on the part of the people rather than the technologies deployed. Staff are not well involved or trained in the usage of these ERP systems which impedes their smooth usage at the company. Respondents are of the view that strategies to manage sustainability of ERP accounting information system projects should be adopted to directly address the challenges faced. It was recommended that the reliability of the ERP system should be improved by putting in place minimum service level agreements with the service provider of the ERP system. Top management support and executive strong will is important to encourage usage and sustainability. Managers at the company should lead by example for example by leading the way in usage of the ERP system at the company so that the staff can also emulate them. Management should provide ongoing user training for users of the system on a regular basis. User support should also be encouraged at the company.
CHAPTER ONE

INTRODUCTION

1.1 Background

Project sustainability is measured as that benefit that accrues to a project organisation beyond the time of project implementation (Morgese, 2014). It encompasses activities undertaken by project staff and beneficiaries to ensure that the benefits of a project continue to be reaped long after the project deliverable was handed over to the client (Blackburn, 2012). Project sustainability has been both a tough challenge and a long-standing issue for organisations around the world according to Oracle (2016). In the 1990’s, after more than four decades of providing foreign assistance to developing countries, corporate entities started to raise more concern on the sustainability of activities and benefits achieved after the withdrawal of foreign assistance. Project sustainability not only looks at ‘lean and green product and process development’, plus closed-loop supply chains, but also calls for an ability and willingness among internal stakeholders (employees and management) of a firm to use the project deliverables to create value, among other benefits (Sammon & Adam, 2010).

Sustainable ERP systems are those whose design, implementation, and maintenance contribute to sustainable business processes. According to Chofreh (2014), sustainable systems should provide complete sustainability data and integrate all sustainability information and processes across business functions. These ERPs must be holistic, integrative and complete solutions for the investing organisation and its industry, to solve sustainability business issues (Wingreen, Mahdavian & Gupta, 2014).
Security Group Uganda is the largest private security companies in East Africa, and one of the leading service providers in Uganda. In Security Group Uganda, an ERP System called Omni Accounts Software was installed in 2012 as a way of improving operational efficiency. The investment in Enterprise Resource Planning Systems (ERPs), just like all other investments, is a capital budgeting decision that is meant to give a handsome return to firms that intend to remain competitive. The most obtrusive power that ERPs present to business firms is their ability to integrate all business processes, workflows and information resources, with the aim of improving operations ERPs come with a range of payoffs for firms that invest in them, like inventory reduction (thus reduction of ordering and carrying costs of stock), improvement of human resource management practices, productivity payoffs, supply chain management, revenue increases, demand and supply streamlining, transport and logistical management, improvement in business process management, flexibility and agility in order processing, cost reduction, easy cash management, and overall organisational performance (Wingreen et al., 2014; Rajan & Baryal, 2014; Henderson, 2016; Bhumgara & Sayyed, 2017).

This improvement in organisational performance can only be achieved if the ERP systems installed in the firm are sustainable enough to continue being used by employees of the firm (Frazee and Khan, 2012). It should be noted that for business processes, sustainability means operational continuity of a project beyond its implementation period. The ERP system was outsourced from Germany, and management of the company decided to install this legacy package in its totality in the firm. In addition, the company runs two other major enterprise collaboration, Easy Roster, an employee tracking system, and Memory Soft used by the Human Resource Department for payroll and other HR functions. The Omni Accounts ERP system specifically integrates accounts, stores, marketing and sales, procurement, and operational functions of the Group on one interface. This
system comes with innumerable potentials for the firm. According to the Security Group Annual Report (2015), since the inauguration of this ERP, little training has been done in the usage of the firm. Only 35% of the staff have undergone related training and only 20% of them have access to the system, meaning that even less of them actually use the system. This is evidenced by the fact that employees still use manual ways of processing reports and other documents they would have gotten in a very short period from the system. In a recent survey, over 62% of the staff in the firm regarded the system as simply an accounting information system or one too complicated to be embraced, and have not taken the trouble to explore the power and potential that this technology comes with. This implies that the ERP system that the company introduced has not been sustainably utilized by the company. It is necessary to understand the management of its ERP system in improving Business Process Management.

1.2 Statement of the Problem

Sustainability is an important aspect of projects to have lasting impact in an organisation. In 2012, Security Group Uganda Ltd. invested in an Enterprise Resource Planning system that is meant to streamline transaction processing, procurement of utilities, processing of orders, and overall business process management. However, sustainability is a big challenge as regards the system at this company. Five years since this system was installed in the firm, most employees do not know how to use the system, and it is viewed as simply an accounting information system. Evidence from 2017 shows that only 20% of the staff have access to, and actually use the system. There are very many user complaints, and pressure to change. All of these factors affect the overall sustainability of the software projects. It doesn’t help the situation to learn that management plans to scale down rather than scale up usage of the system in the next 2 to 5 years. Therefore,
sustainable usage of this system is held in balance (Eyolu, 2017). Hence this study seeks to examine the sustainability of all ERP systems in SGA Uganda Ltd.

1.3 Purpose of the Study
This study will seek to examine the management of ERP sustainability in Security Group Uganda Limited.

1.4 Research Objectives
a) To assess ERP systems sustainability in Security Group Uganda.

b) To ascertain the challenges to sustainability of ERP systems projects in Security Group Uganda.

c) To find out the strategies for managing the challenges to sustainability of ERP systems in projects Security Group Uganda.

1.5 Research Questions
a) What is the state of ERP systems projects’ sustainability in Security Group Uganda?

b) What are the challenges to the Sustainability of ERP systems project in Security Group Uganda?

c) What are the strategies for managing the challenges to project sustainability of ERP systems in Security Group Uganda?

1.6 Scope of the Study

1.6.1 Subject Scope
The study will review the theory of project sustainability with specific reference to Enterprise Resource Planning Systems.
1.5.2 Geographical Scope

The study will focus on ERP system usage and its sustainability in Security Group’s Offices around Uganda.

1.6 Significance of the Study

a) The results and recommendations of the study may enable policy makers in Security Group, especially top management to understand and appreciate the factors that help create sustainable ERP systems investments.

b) The study may enable key parties i.e. project managers, project sponsors, and the employees in Security Group appreciate the need to use ERP systems in improving Business Process Management and Service Delivery.

c) The study may provide literature regarding the successful management of ERP projects in private firms, and how higher returns on such investments can be achieved.
CHAPTER TWO
LITERATURE REVIEW

2.0 Introduction

This section highlights literature on the arguments and opinions of earlier scholars which are related to the subject matter.

2.1 Theoretical Framework

Despite the various benefits and services of ERP system usage, its not well adopted in companies such as Security Group Limited hence the need to be guided by models which explain technology adoption.

There are a variety of models that are utilized for explaining technology adoption. These include the Technology Acceptance Model (TAM) (Davis, 1989), Theory of Planned Behaviors (TPB) (Ajzen, 1991), Decomposed Theory of Planned Behavior (DTPB) (Taylor and Todd, 1995), Innovation Diffusion Theory (IDT) (Rogers, 1995), Information Technology Adoption Model (ITAM) (Dixon, 1999), and Unified Theory of Acceptance and Use of Technology (UTAUT) (Venkatesh et al., 2003) The most utilized are the Technology Acceptance Model (TAM) and the Unified Theory of Acceptance and Use of Technology (UTAUT).

Venkatesh et al (2003) developed this model through reviewing eight models namely Theory of Reasoned Action (TRA), Technology Acceptance Model (TAM), the motivational model, Theory of Planned Behavior(TPB), a model combining TAM and TPB, the model of PC utilization, Diffusion of Innovations(DOI), and the social cognitive theory. The model considers four constructs as direct determinants of user acceptance and usage behavior, namely performance expectancy, effort expectancy, social influence, and facilitating conditions. There are four key moderating
variables: gender, age, experience, and voluntariness of use. The authors stated that UTAUT provides a tool for managers to assess the likelihood of success of technology introductions and to understand the drivers of acceptance in order to design interventions, which include, training or marketing.

2.2 Project Sustainability

Studies in the concepts of sustainability and sustainable development have their genesis in the United Nations programmes geared towards environmental conservation. The earliest use of the term sustainability, according to Warhurst (2002), was during the 1972 United Nations conference in Stockholm, and subsequent debates focusing on the ‘limits to growth’ presented by the over-exploitation of environmental resources. The Brundtland report of the World Commission on Environment and Development (WCED, 1987), dabbed “Our Common Future”, provides the most cited definition of sustainability, indicating that it is the kind of development which meets the needs of the present, without compromising the ability of future generations to meet their own needs. Sustainability is borne out the increasing need to encourage responsible and selfless use of natural resources; with cognition of the fact the future needs for these resources might be more demanding than the present. The World Business Council for Sustainable Development, (2003) expounds the concept, to indicate that sustainability and sustainable development constitutes the simultaneous pursuit of a triple bottom line triple development agenda, of economic prosperity, environmental quality and social equity. This triple-bottom line, as used in project management literature, was first coined Elkington (1997), and was later expanded by Walker (2001) to include the human aspect of information systems. In this case, the Triple Bottom Line (TBL) evolves into a Quadruple Bottom Line (QBL), which emphasizes that project design must include tools that facilitate human fulfillment. Therefore, organisations intending to build institutional sustainability
need to aim beyond the primary profit motive, to other social economic needs of users (Lockwood, Bakalian, and Wakeman, 2005; Nyström and Mustaquim, 2014).

Sustainability in itself is mostly used to refer to sustainable development projects undertaken by the United Nations, and other development partners. Its usage therefore is more apparent in the development (voluntary sector), than the business (private) sector. The Department for International Development (2000) specifically applies the concept of sustainability in the private sector institutional management, indicating that sustainable business organisations ensure that their existing structures and processes have the capacity to continue functioning over a long period of time.

The dissection by Lockwood et al., (2005), of the multidimensional factors that determine sustainability, can also be looked as a categorization of the taxonomy of sustainability. According to the authors, project and organisational sustainability is determined by technical factors, including design, performance and maintenance issues of the project; community and social factors, including willingness to support projects; institutional factors, including policy and external follow-up support; environmental factors, including the sustainability of the water source; financial factors, including the ability to cover recurrent costs; and health factors, including the need to continue the provision of hygiene education to affect long-term behaviour changes. From these factors therefore, and basing on literature by Schouten and Moriarty, (2003), and Lockwood, et al., (2005), we can infer, that sustainability includes different forms, including technical, institutional, financial, social, environmental, and health sustainability.
2.3 **Sustainable Enterprise Resource Planning Systems**

While the concept of sustainability has been mostly applied to environmental as well as social issues, the obtrusive impact of information technologies on the environment, and in private, public and non-government entities calls for an earnest, rigorous and detailed analysis of the extent to which information systems are sustainable (Hoch & Dulebohn, 2013). Sustainable Information System (SIS) is have been conceptualised to easily adapt to their environment, involve relevant stakeholders, and support the lifecycle of knowledge, that is, knowledge creation, knowledge evaluation, integration and application (Maruster, Faber, & Peters, 2008). The linkage between environmentalism and IT sustainability can hardly be overlooked. There is for instance a strong connection between IS sustainability and environmental management. The ISO 14001 standard, as postulated and specified by the International Standards Organisation (ISO), for example provides for the creation an Environmental Management System (EMS) (ISO, 2004) within an information system. Such a system or module must be envisaged during IS planning activities, processes, procedures, and management should provide for resources required in developing and maintaining of environmental policies within an organisation’s information system (Haab & Cramer, 2013).

Nyström and Mustaquim (2014) note that the concept of information systems sustainability is eminently reflected through the system design process. Notably, sustainable systems must incorporate the complex shaping of individuals’ attitudes towards these systems, and the consideration of social-environmental issues existing in the real world that this system is going to operate. Environmental sustainability dimensions of information systems must be strongly dependent on the availability and user-friendliness of correct and current environmental protection information for users of the system (Dey, Clegg & Bennet, 2010).
2.4 Applying the taxonomy of project sustainability on ERP systems

According to Wingreen et al., (2014), there are several challenges that constrain the performance of ERP projects in organisations. These range from individual, organisational, and inter-organisational factors that business firms need to contend with, if sustainable adoption of ERPs is to be achieved. Lotfy (2015) observes the human attitudinal challenge that affects most ERP systems. The authors (mention them) indicate that process technologies like ERPs require individuals, and many stakeholder groups, and thus come with much more difficulty in terms of change management. The achievement of sustainability after implementation requires the active participation and voluntary involvement of tightly knit groups of stakeholders in an organizational context. Bhumgara and Sayed (2014) and Haab and Cramer (2013) add that the failure to manage human relations and the ever changing user needs constrains the ex-post advantages of adopting these systems.

Literature from the Kulubya (2015) severally decomposes project sustainability into financial, technical, community or social considerations, institutional, policy and environmental forms. According these authors, and in line with the United States Agency for International Development (USAID, 1994), technical and financial sustainability is the most closely o business organisations, while community, social and environmental sustainability are more related to the voluntary organisations and their goals of community development. The USAID for instance indicates that financial sustainability mostly aims at operational and maintenance effectiveness of an organisation.

2.4.1 Operational sustainability

In this case, the most indicator of project sustainability is the ongoing Operation and Maintenance (O&M) of the information system after its installation (implementation). The operationally
sustainable ERP systems provide tools and modules to support prudent corporate governance. Scholtz, et al., (2016) adds that sustainable systems must be designed to incorporate four main components or layers of a performance management system (PMS) framework, which include the data layer, reporting layer, analytical layer and the monitoring layer. According to Muntean et al., (2010), the existence of these four layers in the design of information systems (like ERPs), enables data aggregation, normalization, and systems integration, ease of adoption, and ultimately sustainable use. A sustainably designed is for instance uses database and data warehousing technology to Extract, Transform and Load (ETL) the data into the lowest layer of processing, which is the data layer. Bero (2012) expounds, that the monitoring layer of an ERP enable performance monitoring of system data from the various pools (sources), and meaningful information is then displayed by means of performance dashboards and scorecards.

2.4.2 Technical sustainability

Technical sustainability may also encompass user perceptions of the systems, its functioning and the use system infrastructure after its installation (ex-post project period) (Bernroider, 2014). In addition, technical sustainability therefore entails the technical capacity of project users to affect repairs and maintenance, and the availability of equipment or spare parts necessary to carry them out (Lockwood, 2005). There must be technical assistance provided to the project beneficiaries or customer (information system users) to ensure maximum benefit from the project outcome (ADB, 2010).

2.4.3 Financial sustainability

Whittington et al., (2009) observes that a financially sustainable project is designed in such a way that it empowers users and other major project beneficiaries or community members with financial
ability and willingness to pay for services, and other deliverables provided by the project infrastructure. Financial sustainability is in this case measured by an organization’s net income (the surplus of revenues over expenses); liquidity (the cash available to pay bills); and solvency (the relationship of assets and debt or liabilities) (USAID, 2015). In ERP systems projects, financial sustainability is also ensured through assessing the system’s architecture and vendor’s financial stability (Munkelt and Völker, 2013). The choice of service provider is usually a trade-off between large software vendors (who are usually international) and local SMEs (who may understand the industry, but may lack the necessary financial resources to keep on improving the system.

2.4.4 Institutional sustainability

Policy and institutional issues that may constrain the sustainability of a project, like follow-up support, continued training, private sector involvement in project supplies goods, and services, plus and the management contracts, legal frameworks for recognition of water committees and ownership, supportive policy and regulatory environment, and clarity over roles for operation and management (Lockwood et al., 2005). The ADB (2010) includes other institutional factors that explain institutional sustainability, like the existence of political will on the part of government to maintain support of key project stakeholders, institutional capacity to take appropriate follow-up actions on project activities, the extent to which the outcomes of project interventions are resilient to changing policy (reforms), financial, social, economic, and political conditions of a country or sector, and continued support for program outcomes from key stakeholders of the project. It should be noted, that for information systems projects, institutional factors include existing law, regulations, and standards that must be adhered to, to ensure information systems sustainability (Mignerat & Rivard, 2012). Institutionalism in information systems enables the contextualization
of how institutional pressures and how they impact on the design, use, and consequences of technologies, either within or across organizations. Bhumgara and Sayyed (2017) posit that there are many pressures from previous scholars which include normative or mimetic, regulative or coercive, and social or cultural-cognitive factors within the institution and its environment.

2.4.4 Social-community sustainability

The community development praxis model of voluntary organisations, with its ability to incorporate the social-cultural practices of people in implementing a project’s intervention logic is an adequate determinant of the efficacy of social-cultural factors in influencing expected adoption of the introduced project solution (Mazibuko, 2007). This in itself is a prerequisite of social-community sustainability. Henceforth Lyson, Smut, & Stephens (2001) indicate that social cultural norms, behaviours and practices of a community must be favourable to a project intervention if it is to be socially sustainable. For IS projects, the installed system should thus far be in agreement with the social norms and values of users if it is to become sustainable. Rogers (1983)’s classical example, in his diffusion of innovations model exemplifies how community members and end-users of an innovation may reject new systems because of their primitive social-cultural beliefs. Social sustainability in information systems must be incorporated through ensuring social facilitation, where connecting users with peers, and the potentiality of interaction between information system users (Nyström & Mustaquim, 2014). Human Computer Interaction (HCI) experts encourage an emphasis on building long-term positive influences between computer systems and human users (Simoni, et al., 2007), and compliance with ethical usage of systems by users. Systems participants (including users, designers and managers) must recognize need for sustainable practices (Håkansson & Sengers, 2013) that are in accordance with fit multiple levels of user practices, in community, family, and individual, and further consider multidimensionality
of social sustainability. Social sustainability is also closely intertwined with the Participatory Design (PD) component of Information Systems. PD proponents argue that methods of eliciting, analyzing, and specifying user requirements (MEASUR) methods must be applied in the initial phases of project design, when the problem definition is still vague. This will help reduce system complexity, encourage ease of use and ultimately boast social sustainability. The application of social, cultural, and organizational considerations in the development or adoption of an information system has been technically called organizational semiotics (OS). This, according to Simoni and Baranauskas (2004), involves the active participation or involvement of end-users in developing ERPs.

2.4.5 Environmental sustainability

A careful analysis of the system environment, in order to identify social, cultural, and institutional factors that may constrain the sustainability of systems and manage them, is also important. Investment in software and hardware should also be a top priority for firms that intend to build sustainable systems. Usually firms invest in the main system, but do not acquire utility software, like anti-spyware that supports the main computer program. Deliberate investment in these support systems is also important if sustainable adoption is to be achieved. These and many other strategies can provide an impetus for ERP project performance (Mobbs, 2012).

The concept of sustainability derives most of its literature from environmental conservationist research. Environmental governance factors determine environmental sustainability. In the broadest sense, sustainable development project strategies aim at promoting harmony among human beings and between humanity and nature (Silvius & Schipper, 2010).
In the environmental perspective, ERP systems projects should not cause degradation of resources in the long run; natural capital should remain intact; and the source and sink functions of the environment should not be degraded (Scholtz, et al., 216). Environmentally sustainable ERP systems must subscribe to the ‘Green IT’ rationales for safer, cleaner and community sensitive systems. According to Sabbaghi and Vaidyanathan (2012), sustainable IT should focus on improving energy efficiency, reducing carbondioxide emissions, reduce the use of paper (and in extension deforestation), reducing the cost of data center hardware, software, and operations; increasing the overall IT security posture of business and government; and to increase the use of more efficient computing platforms and technologies. Overall, sustainable IT and IS should focus on designing systems for environmental sustainability, green design and manufacturing, energy-efficient power management, practicing and encouraging server virtualization, eco-friendly disposal and recycling of IT waste, use of renewable energy sources for powering IT infrastructure, reducing printing by using electronic file management systems; use virtual collaboration tools and among other efforts (Ciena, 2012).

2.4 Challenges to sustainability of projects

There are several challenges that constrain the sustainability of ERP projects in organisations. These range from individual, organisational, and inter-organisational factors that business firms need to contend with, if sustainable adoption of ERPs is to be achieved. Lotfy (2015) cites Tornatzky and Fleischer (1990), observing the human attitudinal challenge that dogs most ERP systems. The authors indicate that process technologies like ERPs require individuals, and many stakeholder groups, and thus come with much more difficulty in terms of change management. The fact people themselves part of the system, and therefore, the achievement of sustainability after implementation requires the active participation and voluntary involvement of tightly knit
groups of stakeholders in an organizational context. The failure to manage human relations and
the ever-changing user needs constrains the ex-post advantages of adopting these systems
(Wingreen et al., 2014).

The existence of management support (executive support) is paramount for the successful
implementation and sustainable use of information systems. However, for many firms that invest
in ERP systems, management is usually reluctant to support these systems and encourage user
adoption. Grabski et al., (2011) indicates that there is a strong relationship between organizational
management support systems, the nurturing of organizational shared beliefs, the building of
employee ERP skills and the sustainability of ERP systems in organisations. Insights from Lofty
(2015) indicate that management should not only invest in these systems, but also empower both
IT professionals and other users in the organisations to actively learn and use these systems.
Executive decisions should also try to use tools in these ERP systems in making executive
decisions in organizational management. This can also encourage sustainable use of ERP systems.

Chang et al., (2008) asserts that the social context and social factors influence technology use (as
identified by Venkatesh et al., 2003), are very strong prerequisites of ERP project sustainability.
However, in many firms, the paucity of social support programs, especially in terms of user support
and user forums makes it hard for individuals to adopt and sustainably use ERP systems. Chang et
al. (2008) finds that social factors, as an organizational characteristic, had the strongest effect on
the ERP system usage. There are inherent social contextual factors, like attitudes, perceptions,
interpersonal relations, and influence from peers which influence usage of information systems.
These, if not well managed will affect project sustainability.

Systematic and unsystematic risks that hinder project success may also affect the sustainability of
ERP projects. Peng and Nunes (2009) provide taxonomy of the different ERP risks, and these
include operational, analytical, organizational, and technical, all of which hinder post-implementation success (sustainability). There are a number of organizational (processes and procedures) risks which cause ERP system failure in the post-implementation phase. Tsai et al., (2009) on the other hand indicates that these organizational risks may negatively influence ERP performance improvement level post-implementation due to ERP implementation problems. These risks if not managed by the project team may affect project sustainability.

User skill gaps and the lack of training also curtail the sustainability of ERP projects in organisations. Nah, Islam, and Tan (2007) found in their study that the presence of a learning environment in the organizational culture positively moderated the impact of enterprise-wide communication on the success of an ERP implementation, and sustainable usage. Lee et al., (2010) observes that user training has a strong positive effect on ERP perceived usefulness. If users are not trained therefore, or not encouraged to attend trainings, this may affect the overall sustainability of ERP projects. Other challenges to ERP sustainability include resource constraints that firms in developing countries face, the ever changing user requirements, systems security threats and vulnerabilities posed to sensitive company data, lack of semantic integration of intra-organisational sub-systems, the high cost of IT infrastructure, inappropriate installation of non-required modules of legacy systems, all of which curtail adoption, actual use, and sustainability of ERP information systems projects.
2.5 Strategies for managing the challenges to sustainability of projects

A number of authors, like Chofreh, Gonia, and Klemeš (2016), Lotfy (2015), Mobbs (2012), Nyström and Mustaquim (2014) summarize the possible strategies that can be undertaken by firms to combat the challenges to ERP project sustainability among business firms. Top management support and executive strong will is important to encourage usage and sustainability. The availability of user training programs, not just immediately after implementation, but as an ongoing programme is also important for systems to improve on sustainability. Participatory Development (PD) is a strong prerequisite for both successful systems implementation and post-implementation sustainability.

A careful analysis of the system environment, in order to identify social, cultural, and institutional factors that may constrain the sustainability of systems and manage them, is also important. Investment in software and hardware should also be a top priority for firms that intend to build sustainable systems. Usually firms invest in the main system, but do not acquire utility software, like anti-spyware that supports the main computer program. Deliberate investment in these support systems is also important if sustainable adoption is to be achieved. These and many other strategies can provide an impetuous for ERP project sustainability.

Scholtz, Calitz, and Jonamu (2016), in agreement with Muntean et al., (2010) propose an architectural framework for building operational performance management, and ERP Systems sustainability. According to Bernroider et al (2014), technical sustainability should aim at ensuring quality, reliability, and equitable access to and use of project outcomes or deliverables. Nyström and Mustaquim (2014) also add that technical and operational sustainability of information systems must be catered for during information the maintenance and planning of the Systems Development Life Cycle (SDLC). In this case, the associated design principles, like undertaking a
sustainability impact assessment and long-term intergenerational concerns must be given close consideration. The systems administrators and users must be equipped with technical skills and resources to continuously maintain the information system, to ensure that it continues performing the functions for which it was designed. The design team must provide for mechanisms of planning for future system development by identifying new problems or user requirements.

On the international scene, there has been a clear tendency towards fewer and larger software companies, and smaller software vendors have been acquired by larger ones (e.g. JD Edwards by PeopleSoft, PeopleSoft and Siebel Systems by Oracle, and Damgaard and Navision by Microsoft). This trend is still going on, but in the East African context, preference is still on international service providers. The chosen ERP software vendor and the customer (in this case the firm) must have financial resources to continue maintaining the systems through routine updates, upgrades, and user training (Munkelt & Völker, 2013).

Specifically, end-user, the client (which is usually the buying organisation), customer, system stakeholders, or problem owners are supposed to give complete and explicit descriptions of their demands in terms of the system to be developed. This is necessary, because it encourages the project team to pay close attention to social-cultural factors and map a project’s intervention logic to mitigate user resistance and ensure project sustainability (Henderson, 2016; Sammon & Adam, 2010).

2.6 Conclusion

In summary therefore, project sustainability has been diversely studied, initially from the concepts of environmental sustainability to being applied to business and public projects. The main rationale of ensuring sustainability in a project is the idea that present generations must ensure that they
responsibly exploit existing resources, such that future generations benefit from them. In terms of information systems sustainability, much literature points to the need to encourage green IT, reduce electronic waste, participation of users in designing their own systems, and the sustainable use of information systems infrastructure. Overall, the concept of project sustainability, when applied in non-development fields goes beyond the triple or quadruple bottom-lines, to the most important project sustainability indicators that are salient in those other fields.
CHAPTER THREE
METHODOLOGY

3.0 Introduction

This chapter presents methodological approaches that were used to collect data, determine population, sample size and selection, data collection method and instruments, validity and reliability of the instrument, data analysis and anticipated limitations.

3.1 Research Design

This was a cross-sectional research design which was based on a quantitative approach. The cross-sectional research design was used because the researcher collected and used data on project sustainability in Security Group Uganda Ltd, for only a specific point in time. The study focused on the factors that determine the sustainability of ERP Systems in Security Group Uganda Ltd.

3.2 Population of the Study

The population of the study constitutes 120 staff at the Security Group Uganda Ltd head office who have direct access to the ERP system (Security Group Uganda Human Resource Report, 2018). This is because these employees at different levels uses one or more modules of the Enterprise Resource Systems of the company to perform their routine or periodic roles and therefore will provide the information needed in this study.

3.2.1 Sampling Design and Sample Size

The sample size of 92 Security Group employees at all levels of management was determined using Krejcie and Morgan (1970)’s sample size estimation table. The study employed simple random method in the selection of respondents from the sample size. Simple random sampling was used to select the sample for the target population. It was used because all respondents in the
population had equal chance of being selected. The researcher travelled to the different areas of operation of Security Group Uganda to select the sample. A list of staff was obtained from the head office which broke down the staff into various branches. Upon reaching the branch, the researcher randomly picked names from the list until he reached the required number of respondents.

The unit of analysis was Security Group Uganda and the unit of enquiry were the employees of the company.

3.3 Sources of Data

This study used primary data that was collected using a structured questionnaire from administrators and end-users of SGA’s ERP systems, and active participants in the company’s information systems projects an interview guide was used to interview the Systems and Database Administrators for each of the IS projects.

3.4 Measurement of Variables

Project sustainability was measured using a number of indicators like employee participation, stakeholder involvement, project continuity and staff empowerment on a structured standard questionnaire. These same measures were used by Rajan and Baral (2014) as well as Dunaway and Bristow (2011).

3.5 Data Collection Instrument

Data for this study was collected from individual employees of Security Group, using self-administered questionnaires and an interview guide. The instruments were jointly administered with the respondents so as to acquire adequate information for this study. All components variables in the questionnaire were anchored on a 5-point Likert Scale, from Strongly Disagree, represented
by a 1 to Strongly Agree represented by a 5. The interview guide was specifically used to elicit responses about challenges to sustainability of ERP systems and possible strategies of overcoming these challenges.

3.5.1 Validity and Reliability of Instruments

The questionnaire and interview guides were first pre-tested for validity using Content Validity Index where 3 experts were requested to indicate the relevance of questions on the concept of sustainability. The proportions of relevant were computed from each expert as follows:

<table>
<thead>
<tr>
<th>Expert</th>
<th>CVI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expert 1</td>
<td>0.75</td>
</tr>
<tr>
<td>Expert 2</td>
<td>0.78</td>
</tr>
<tr>
<td>Expert 3</td>
<td>0.72</td>
</tr>
</tbody>
</table>

*Source: primary data*

Since the results from the experts were all above 0.7, this implied that the questions were relevant.

The reliability of the instruments was calculated tested using Cronbach’s alpha coefficient. A cut-off point of 0.7 was taken for the CVI. This is in line with Sekaran (2000), who recommends that the research instrument used to collect data should be valid, able to yield similar results at all time, and should measure what the researcher actually intends to measure. Similarly, a cut-off of 0.7 was considered for the Cronbach’s Alpha, in accordance to Cronbach (1951).
Table 2: showing Reliability Results

<table>
<thead>
<tr>
<th>Theme</th>
<th>No. of Items</th>
<th>Cronbach's Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Sustainability</td>
<td>10</td>
<td>0.766</td>
</tr>
<tr>
<td>Challenges to sustainability</td>
<td>10</td>
<td>0.701</td>
</tr>
<tr>
<td>Strategies for sustainability</td>
<td>10</td>
<td>0.866</td>
</tr>
</tbody>
</table>

Source: Primary data

The results above show that Cronbach alpha values for sustainability, challenges and strategies are above 0.70. This means that the questions set were reliable as can be seen in the table above.

### 3.6 Data analysis and Presentation

Data from the filled questionnaires was compiled, sorted, classified and then entered into the computer for analysis. This involved the use of Statistical Package for Social Scientists (SPSS) Version 20 for data processing. Data analysis involved the use of descriptive statistics involving, mean and standard deviation and also factor analysis to extract the most important strategies and challenges of risk planning practices.

### 3.7 Ethical consideration

Central to the success of any research study conducted within the realm of social science and business studies are the ethical considerations made by the researchers (Saunders et al., 2012). The researcher will therefore undertake compliance with legal and ethical research considerations as required in research, and in accordance to the American Sociological Association Code of Ethics, the American Psychological Association (APA), and as highlighted in Bryman and Bell (2011). These are summarized below:
a) Permission was obtained from the General Manager of the company to obtain data from the respondents, after showing him an introduction letter from the university.

b) Informed consent of participants was specifically obtained before involving them in the study;

c) No respondent was induced in any form to participate in this study and participation was voluntary.

d) Members of the sample group in SGA Kampala Office who participated in the study were not be forced in any ways to provide data;

e) Privacy of the research participants and responses given was ensured, so that no personally sensitive data is collected form respondents, and all data collected was only used for academic purposes;

f) The research participants were briefed about the aims and objectives of the study before the primary data collection process;
CHAPTER FOUR

ANALYSIS AND INTERPRETATION OF RESULTS

4.1 Introduction

This chapter covers the analysis and interpretation of the results according to the objectives of the study which were;

(i) To examine the nature of management of ERP systems sustainability in Security Group Uganda.

(ii) To examine the challenges to sustainability of ERP systems projects in Security Group Uganda.

(iii) To find out the strategies for managing the challenges to sustainability of ERP systems in projects Security Group Uganda.

4.2 Background information

4.2.1 Response rate

The response rate is the percentage of people who responded to the study. If the response rate is 50% or less, it shows that the data is inadequate for analysis, but if the response rate is 60%, it indicates that the data is good for analysis and if it is 70% and above, then the data is very good for analysis. The researcher should use all means to increase the response rate in order to have a representative sample for meaningful generalization (Mugenda & Mugenda, 2003, p.83).

The response rate was 86.9% as 80 of the 92 respondents returned the filled questionnaires.

4.2.2 Demographic Characteristics of the Respondents

The demographic-data characteristics that were discussed include category of respondents, gender, educational background and how long the respondent has worked for the company. Table 4.1 represents the distribution of these bio-data characteristics.
Table 4.1: Distribution of the bio data characteristics of the respondents

<table>
<thead>
<tr>
<th>Variable</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Category of Respondents</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Systems Administrator</td>
<td>15</td>
<td>20.0</td>
</tr>
<tr>
<td>Database Administrator</td>
<td>7</td>
<td>8.0</td>
</tr>
<tr>
<td>Human Resource Practitioner</td>
<td>13</td>
<td>16.0</td>
</tr>
<tr>
<td>Accounts Officer</td>
<td>13</td>
<td>16.0</td>
</tr>
<tr>
<td>Credit Controller</td>
<td>3</td>
<td>4.0</td>
</tr>
<tr>
<td>End Users</td>
<td>13</td>
<td>16.0</td>
</tr>
<tr>
<td>Sales &amp; Marketing Executive</td>
<td>9</td>
<td>12.0</td>
</tr>
<tr>
<td>Procurement Officer</td>
<td>7</td>
<td>8.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>80</strong></td>
<td><strong>100</strong></td>
</tr>
<tr>
<td><strong>Gender of respondents</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>54</td>
<td>68.0</td>
</tr>
<tr>
<td>Female</td>
<td>36</td>
<td>32.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>80</strong></td>
<td><strong>100</strong></td>
</tr>
<tr>
<td><strong>Education level</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diploma</td>
<td>36</td>
<td>32.0</td>
</tr>
<tr>
<td>Undergraduate Degree</td>
<td>35</td>
<td>44.0</td>
</tr>
<tr>
<td>Masters</td>
<td>9</td>
<td>24.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>80</strong></td>
<td><strong>100</strong></td>
</tr>
<tr>
<td><strong>Tenure of Work</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than 3 years</td>
<td>38</td>
<td>48.0</td>
</tr>
<tr>
<td>3-6 years</td>
<td>35</td>
<td>44.0</td>
</tr>
<tr>
<td>7-10 years</td>
<td>7</td>
<td>8.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>80</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

*Source: Primary data*

The results in the table 4.1 above show that whereas the biggest category (20%) of the respondents were systems administrators, there were respondents from other departments which gives the implication that the data was collected from a diverse selection of respondents which would enrich the findings. The results in the table 4.1 above show that the majority (68%) of the respondents are male while the females comprise 32 percent. This implies that Security Group Uganda Limited
employs more males than female staff though all genders are represented in the workforce of the company.

The results in the above table 4.1 show that the biggest category representing 44 percent of the respondents have an undergraduate degree while 32 percent have a diploma and 24 percent are holders of masters degrees. This implies that the company employs highly educated staff, and it also implies that the findings can be relied upon because the respondents were knowledgeable of the subject of enquiry hence would ably provide information helpful to the study. The results in table above 4.1 show that most of the respondents (48%) have been working there for less than three years while 44 percent have been working there for 3-6 years and 8% have been there for 7-10 years. No respondent has been working there for more than 10 years which implies that most staff at Security Group have been working there for less than three years.

4.3 Descriptive Statistics

The items in the questionnaire were anchored such that; 1 - Represents Strongly disagree, 2 – disagree, 3 – Neutral, 4 – Agree and 5 – Strongly Agree. Means close to 1 or 2 represent disagreement, while means close to 4 or 5 show agreement with the issue at hand. The findings are shown in the table 4.2 below and the interpretation of the results is given thereafter.

4.3.1 Assessment of project sustainability in Security Group Uganda

The Nature of management of ERP systems sustainability in Security Group Uganda was assessed using the questions as listed in the table below. Table below shows each of the items was assessed by the mean, maximum, minimum and the standard deviation.
<table>
<thead>
<tr>
<th>Project sustainability</th>
<th>N</th>
<th>Min</th>
<th>Max</th>
<th>Mean</th>
<th>Std. Dev.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monitoring and evaluation has enhanced sustainability of projects</td>
<td>80</td>
<td>4</td>
<td>5</td>
<td>4.49</td>
<td>.503</td>
</tr>
<tr>
<td>Policies and processes that facilitate participation and empowerment and resource sharing are adopted</td>
<td>80</td>
<td>2</td>
<td>5</td>
<td>4.20</td>
<td>.488</td>
</tr>
<tr>
<td>Staff members are empowered to use their own experience, knowledge, expertise and skills to work towards change</td>
<td>80</td>
<td>4</td>
<td>5</td>
<td>4.51</td>
<td>.503</td>
</tr>
<tr>
<td>During the planning stage, staff members are allowed to define their own needs</td>
<td>80</td>
<td>4</td>
<td>5</td>
<td>4.44</td>
<td>.499</td>
</tr>
<tr>
<td>Stakeholders are involved when resources are being allocated and services developed at the planning stage</td>
<td>80</td>
<td>4</td>
<td>5</td>
<td>4.39</td>
<td>.490</td>
</tr>
<tr>
<td>Stakeholders are involved in the decision-making and planning process of the project</td>
<td>80</td>
<td>3</td>
<td>5</td>
<td>4.20</td>
<td>.461</td>
</tr>
<tr>
<td>Training and development is given to staff members</td>
<td>80</td>
<td>4</td>
<td>5</td>
<td>4.45</td>
<td>.501</td>
</tr>
<tr>
<td>Information is disseminated to the staff members</td>
<td>80</td>
<td>4</td>
<td>5</td>
<td>4.34</td>
<td>.476</td>
</tr>
<tr>
<td>Staff are sensitized by management on the objectives of the project</td>
<td>80</td>
<td>3</td>
<td>5</td>
<td>4.24</td>
<td>.457</td>
</tr>
<tr>
<td>Adequate funding is provided to support the projects</td>
<td>80</td>
<td>1</td>
<td>5</td>
<td>3.74</td>
<td>.838</td>
</tr>
<tr>
<td>Technical assistance is provided to the staff.</td>
<td>80</td>
<td>2</td>
<td>5</td>
<td>4.19</td>
<td>.533</td>
</tr>
<tr>
<td>Project design allows flexibility and internalizes performance</td>
<td>80</td>
<td>2</td>
<td>5</td>
<td>4.10</td>
<td>.542</td>
</tr>
<tr>
<td>There's access to inputs and markets</td>
<td>80</td>
<td>1</td>
<td>5</td>
<td>3.95</td>
<td>.692</td>
</tr>
<tr>
<td>Exit strategies are developed during project design phase and implementation</td>
<td>80</td>
<td>3</td>
<td>5</td>
<td>4.11</td>
<td>.450</td>
</tr>
<tr>
<td>There is follow-up and technical support to the projects</td>
<td>80</td>
<td>2</td>
<td>5</td>
<td>4.15</td>
<td>.704</td>
</tr>
<tr>
<td>Regular group meetings are held and there is regular attendance</td>
<td>80</td>
<td>2</td>
<td>5</td>
<td>4.23</td>
<td>.576</td>
</tr>
<tr>
<td>A clear vision of the group is known and shared among all members</td>
<td>80</td>
<td>1</td>
<td>5</td>
<td>4.25</td>
<td>.632</td>
</tr>
<tr>
<td>Rules and norms of the group are known by members</td>
<td>80</td>
<td>4</td>
<td>5</td>
<td>4.44</td>
<td>.499</td>
</tr>
</tbody>
</table>
The project has helped in improving ways of work at the company

<table>
<thead>
<tr>
<th>Grand Mean</th>
<th>80</th>
<th>5</th>
<th>4.44</th>
<th>.499</th>
</tr>
</thead>
</table>

(Source: Survey Data)

Table 4.2 above shows responses to propositions regarding the level of project sustainability at Security Group Uganda Limited. Results show strong agreement as well as some noted disagreements with the researcher’s propositions by the respondents. The lowest mean registered of 3.74 is recorded where the researcher proposed that adequate funding is provided to support projects. The researcher also noted a standard deviation of 0.838 in this area which shows a wide spread of responses on the matter. It was also put to respondents that project design allows flexibility and internalizes performance. A number of them disagree and while there were strong agreements with this, the researcher noted a mean of 4.10, the third lowest figure in this category.

The results in table 4.2 above further show a strong response to the proposition that staff members are empowered to use their own experience, knowledge, expertise and skills to work towards change (mean 4.51) and that Monitoring and evaluation has enhanced sustainability of projects (mean 4.49). This is followed by strong agreement and agreement with the proposition that Training and development is given to staff (mean 4.45) and that Rules and norms of the staff are known by members (mean 4.44). The researcher also calculated the overall mean and got a figure of 4.26, indicating general agreement by all the respondents that the level of project sustainability is at an acceptable level.

4.4 Challenges faced in project sustainability by Security Group Uganda Limited

The items in the questionnaire for this section were also anchored such that 5 - represents strongly Agree, 4 – Agree, 3 – not sure, 2 – Disagree and 1 – Strongly Disagree. Means close to 1 or 2
represents disagreement, while means close to 4 or 5 represent agreement with the issue at hand.

The researcher set out to find challenges to project sustainability. Multiple factors contribute to this phenomenon. The findings from data collection are shown in the table 4.3 below.

**Table 4.3: Challenges faced in project sustainability**

<table>
<thead>
<tr>
<th>Challenges faced in project sustainability</th>
<th>N</th>
<th>Min</th>
<th>Max</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>There are overambitious objectives and high expectations that are poorly adapted</td>
<td>80</td>
<td>1</td>
<td>5</td>
<td>3.80</td>
<td>.920</td>
</tr>
<tr>
<td>Inadequate attention given to the formulation of viable exit strategies</td>
<td>80</td>
<td>1</td>
<td>5</td>
<td>3.18</td>
<td>1.134</td>
</tr>
<tr>
<td>Inadequate financial and technical assistance</td>
<td>80</td>
<td>1</td>
<td>4</td>
<td>2.50</td>
<td>1.031</td>
</tr>
<tr>
<td>Conflict over objectives and/or strategies concerning the project</td>
<td>80</td>
<td>1</td>
<td>4</td>
<td>2.45</td>
<td>.870</td>
</tr>
<tr>
<td>Economic and financial benefits are low, compared to investment and operational costs</td>
<td>80</td>
<td>1</td>
<td>5</td>
<td>2.34</td>
<td>.941</td>
</tr>
<tr>
<td>Poor recruitment strategies</td>
<td>80</td>
<td>1</td>
<td>5</td>
<td>2.32</td>
<td>.981</td>
</tr>
<tr>
<td>Unfavorable economic factors hinder project continuity</td>
<td>80</td>
<td>1</td>
<td>4</td>
<td>2.14</td>
<td>.902</td>
</tr>
<tr>
<td>Inadequate training and remuneration of staff</td>
<td>80</td>
<td>1</td>
<td>5</td>
<td>2.08</td>
<td>.911</td>
</tr>
<tr>
<td>Poor quality of inputs</td>
<td>80</td>
<td>1</td>
<td>4</td>
<td>1.96</td>
<td>.625</td>
</tr>
<tr>
<td>Little trust and stakeholder involvement in project decisions</td>
<td>80</td>
<td>1</td>
<td>5</td>
<td>1.93</td>
<td>.569</td>
</tr>
<tr>
<td>Valid N (listwise)</td>
<td>80</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Source:** Survey Data

The results in table 4.3 above show that overambitious objectives and poorly adapted high expectations account for the biggest challenge according to respondents, attracting a mean of 3.80. This is followed by inadequate attention given to the formulation of viable exit strategies (3.18).
The findings show that respondents tend to either disagree or are not sure about whether lack of financial and technical assistance constitute challenges faced in project sustainability. Furthermore, respondents either strongly disagree or disagree with the proposed impact of the following presumed challenges (means): inadequate training and remuneration (2.08), poor recruitment strategies (2.03), conflicts (2.45), poor quality of inputs (1.96), little trust and stakeholder involvement (1.93).

4.5 **Strategies of Improving Project Sustainability**

The third objective of the research was to develop strategies of improving project sustainability. The researcher sought the opinion of respondents on the strategies which, in their opinion, would best work toward the set goal. The items in the questionnaire for this section were also anchored such that 5 - represents strongly Agree, 4 – Agree, 3 – not sure, 2 – Disagree and 1 – Strongly Disagree. Means close to 1 or 2 represents disagreement, while means close to 4 or 5 represent agreement with the issue at hand. Results are shown in the table 4.4 that follows.
Table 4.4: Strategies of improving project sustainability

<table>
<thead>
<tr>
<th>Strategies of improving project sustainability</th>
<th>N</th>
<th>Min.</th>
<th>Max.</th>
<th>Mean</th>
<th>Std. Dev.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ensuring that the project is beneficial to the staff</td>
<td>80</td>
<td>4</td>
<td>5</td>
<td>4.46</td>
<td>.502</td>
</tr>
<tr>
<td>The project should have defined the targeted beneficiaries</td>
<td>80</td>
<td>4</td>
<td>5</td>
<td>4.36</td>
<td>.484</td>
</tr>
<tr>
<td>There is need for ensuring that staff are consulted on these projects</td>
<td>80</td>
<td>4</td>
<td>5</td>
<td>4.30</td>
<td>.461</td>
</tr>
<tr>
<td>Promoting team work and unity among staff</td>
<td>80</td>
<td>3</td>
<td>5</td>
<td>4.29</td>
<td>.482</td>
</tr>
<tr>
<td>Promoting transparency and accountability among the staff members</td>
<td>80</td>
<td>2</td>
<td>5</td>
<td>4.29</td>
<td>.556</td>
</tr>
<tr>
<td>Ensuring that the staff recruitment process follows clear criteria</td>
<td>80</td>
<td>1</td>
<td>5</td>
<td>4.26</td>
<td>.590</td>
</tr>
<tr>
<td>The projects should have clear accountability structures</td>
<td>80</td>
<td>3</td>
<td>5</td>
<td>4.24</td>
<td>.457</td>
</tr>
<tr>
<td>The project should have a developed monitoring and evaluation plan</td>
<td>80</td>
<td>2</td>
<td>5</td>
<td>4.20</td>
<td>.560</td>
</tr>
<tr>
<td>The beneficiaries should have knowledge of the project objectives</td>
<td>80</td>
<td>3</td>
<td>5</td>
<td>4.19</td>
<td>.453</td>
</tr>
<tr>
<td>The staff must fully participate in project activities</td>
<td>80</td>
<td>2</td>
<td>5</td>
<td>4.16</td>
<td>.514</td>
</tr>
<tr>
<td>The branch managers and supervisors should be consulted and have endorsed the project</td>
<td>80</td>
<td>4</td>
<td>5</td>
<td>4.16</td>
<td>.371</td>
</tr>
<tr>
<td>The implementation period should be realistic</td>
<td>80</td>
<td>2</td>
<td>5</td>
<td>4.09</td>
<td>.556</td>
</tr>
<tr>
<td>Technical assistance should be offered continuously</td>
<td>80</td>
<td>2</td>
<td>5</td>
<td>4.05</td>
<td>.593</td>
</tr>
<tr>
<td>There must be sufficient funds to implement the project</td>
<td>80</td>
<td>1</td>
<td>5</td>
<td>3.41</td>
<td>1.122</td>
</tr>
<tr>
<td>Valid N (listwise)</td>
<td>80</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Survey data
From the above results in table 4.4, the respondents strongly advocate for relevance of the project as the most important strategy in improving project sustainability, attracting a mean of 4.46 and standard deviation of 0.502. The project must be beneficial to the staff in order for it to be sustainable according to respondents. Other strongly advocated strategies include defining the targeted beneficiaries (mean 4.36), consulting the staff on the projects (4.30), ensuring teamwork (4.29), promoting transparency and accountability (4.29) as well as ensuring the selection criteria is strictly adhered to (4.26) to project commencement from the wrong footing, among others shown in the table above. The least cited strategy is ensuring availability of funds which attracts a mean of 3.41 and standard deviation of 1.12 which implies a wide spread of opinion on the matter.
CHAPTER FIVE
DISCUSSION, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction
This chapter presents a discussion of findings, conclusions and recommendations drawn from the study findings of the previous chapter. This chapter is organized in three sections. The first section deals with discussions of the research findings in relation to the research objectives and conclusions. The second section focuses on recommendations while the third section presents areas for further research.

5.2 Discussion of findings

5.2.1 Assessment of ERP systems sustainability in Security Group Uganda
The results show that the majority of the respondents agree about the project sustainability in Security Group Uganda. This is shown by an average mean of agreement in these responses regarding operational, technical, financial, institutional, social-community and environmental sustainability.

The respondents also agreed that funding is provided to support the projects, which agrees with several scholars such as Chofreh, Gonia, and Klemeš (2016), Lotfy (2015), Mobbs (2012), Nyström and Mustaquim (2014) about financial sustainability of projects. The funding aspect further agrees with Bishop (2001) who states that many projects have failed to achieve their intended goals, because development assistance is often offered on a temporary basis and projects typically have finite timeframes. Yet, the impacts of the assistance and projects are intended to be lasting.
They also agreed that design allows flexibility and internalizes performance. This is in agreement with Maruster et al (2008) who stated that Sustainable Information System (SIS) has been conceptualised to easily adapt to their environment, involve relevant stakeholders, and support the lifecycle of knowledge, that is, knowledge creation, knowledge evaluation, integration and application.

5.2.2 The challenges to sustainability of ERP systems projects in Security Group Uganda

The findings show that there was agreement from the respondents that major challenges were that overambitious objectives and high expectations that are poorly adapted which contradicts the opinions of Munkelt and Völker, (2003) and Muntean et al., (2010) who pointed out that in an ERP system, data is extracted from various sources in the organisation and is stored in the database of the data warehouse which is in the data layer.

They also disagreed strongly about the quality of inputs Aharikundira et al., (2009) emphatically stated that sustainability should aim at ensuring quality, reliability, and equitable access to and use of project outcomes or deliverables. Additionally, they disagreed that the ERP system is developed minimal staff participation in project activities which agreed Simoni and Baranauskas (2004), who stated that developing such systems involves the active participation or involvement of end-users. More to that and they agreed that staff have a negative attitude toward the ERP system.

This agrees with Lotfy (2015) who cites Tornatzky and Fleischer (1990), observing the human attitudinal challenge that dogs most information systems. The scholars added that the fact people themselves part of the system, the achievement of sustainability after implementation requires the active participation and voluntary involvement of tightly knit groups of stakeholders in an organizational context.
5.2.3 Strategies for managing the challenges to sustainability of ERP systems in projects

Security Group Uganda.

The results for the strategies show that the respondents agreed with all the proposed strategies. The strongest agreement was registered with the proposal about making sure that project is beneficial to the staff members. This agrees with authors, like Chofreh, Gonia, and Klemeš (2016), Lotfy (2015), Mobbs (2012), Nyström and Mustaquim (2014) who state that top management support and executive strong will is important to encourage usage and sustainability.

5.3 Conclusions

There are moderate levels of management of ERP systems sustainability in Security Group Uganda which is reflected in the findings of the study. The staff members recognize the different aspects of sustainability but are not able to assimilate the ERP knowledge they learned and turn it into their own knowledge. This is despite the recognition that ERP systems are important in every organisation.

The study also shows that there are several cited challenges associated with the development of ERP systems and these challenges are mostly rooted in failures on the part of the people rather than the technologies deployed. Staff are not well involved or trained in the usage of these ERP systems which impedes their smooth usage at the company. Strategies to manage sustainability of ERP accounting information system projects should be adopted to directly address the challenges faced.
5.4 Recommendations

From the study findings, discussions and conclusions of the study the following recommendations are made:

The reliability of the ERP system should be improved by putting in place minimum service level agreements with the service provider of the ERP system so that they can ensure 99% uptime of the system.

Top management support and executive strong will is important to encourage usage and sustainability. Managers at the company should lead by example for example by leading the way in usage of the ERP system at the company so that the staff can also emulate them.

Management should provide ongoing user training for users of the system on a regular basis such as once every quarter for all staff. This will address the challenges faced by the staff in using the system and deriving the efficiencies it can bring to the organisation.

User support should also be encouraged at the company, for example the staff should be given software manuals for reference, and also the built-in help functionality for assistance should be provided. More to that management should invest in support hardware and software systems to encourage adoption.

5.5 Limitations of the Study

Most private institutions (and in this case a security firm) are known to be hesitant to release information about their systems and operations, because of the stiff competition in the sector. Therefore, convincing employees to fill these questionnaires was difficult for the researcher. However, the researcher used his social networks in Security Group, being an employee in the institution, to access and convince colleagues to fill up the questionnaire. The researcher also
convinced the respondents by showing them the letter of introduction and tried to convince them that the research is meant for academic purposes only. Secondly, literature about ERPs, especially in Uganda and developing countries might be difficult to access. The author borrowed a leaf from international cases in order to write meaningful literature about Information Systems in the private sector.

5.6 Areas for further study

The researcher recommends future scholars to consider the following areas for further study:

(i) Due to limited time and scope, this study was restricted to just one private organization. It is important for further studies to be carried out in other types organisations such as public organisations, private companies, and Non-Governmental Organisations in order to do justice to all the factors that influence employee motivation. Data should also be obtained from various sources to minimize common methods bias.

(ii) This study used across sectional research design approach, the behaviors of the variable overtime was therefore not analyzed and this restricts the applicability of the findings. Future studies should conduct longitudinal studies to cross validate the findings.
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Mazibuko, J.B. (2007). Enhancing project sustainability beyond donor support. An analysis of grassroots democratization as a possible alternative; Unpublished dissertation submitted in fulfillment of the requirements for the degree of Masters of Arts in the subject Development Studies at the University of South Africa.


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Appendix I: Questionnaire

Makerere University

Dear Respondent

My name is Kigozi Sam, an MBA candidate of Makerere University, and a staff of Security Group Uganda, Head Office. I am currently undertaking a research study, and you have been selected as one of the respondents in examining Managing Sustainability of ERP Accounting Information Systems Projects: A Case of Security Group Uganda Limited. I will therefore appreciate if you could answer a few questions about this topic. I guarantee that all information provided is purely for academic purposes and will be handled with Utmost Confidentiality. Thank you very much for your cooperation and time.

This questionnaire deals with your opinion about your organization’s ERP systems (including Memory Soft, Easy Roster, Omni Accounts ERP, SAGE X3, SAP, or any other ERP system). Your input is of tremendous importance for this study. Based on your experiences as a user of your organization’s ERP system, please show the extent to which you think about each statement. There is no right or wrong answers – the interest is in the number that truly reflects your expectations and experiences with your organization’s ERP system.

**Part 1(a): Bio-Data Information (Please Tick or Circle as Appropriate)**

a) Category of Respondent: System Administrator 1  Database Administrator 2
   Human Resource Practitioner 3  Accounts Officer 4  Credit Controller 5
   Financial controller 6  End-user 7  Invoicing Clerk 8  Sales & Marketing Executive 9
   Procurement Officer 10
   Other designation, please Specify: ……………………………………………………….

b) Gender: Male 1  Female 1

d) Highest Education Attained: Certificate 1  Diploma 2  Degree 3  Masters 4
   PHD 5

e) How long have you been working with Security Group? Less than 3 years 1  3-6 years 2
   7-10 years 3  More than 10 years 4

**Part 1 (b): Projects Related Data**

g) Which IT system do you use on routine basis? (Please tick in the boxes)

<table>
<thead>
<tr>
<th>Memory Soft</th>
<th>Omni Accounts</th>
<th>Easy Roster</th>
<th>Other specific groups, please indicate here below:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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**Part 2**

The tables below shows the alternative responses and the number assigned to each response. The statements relate to ERP Project Sustainability in Security Group Uganda Ltd. With reference to these IT projects, please evaluate each statement by ticking or circling the appropriate box that best suits your response using the scale below.

<table>
<thead>
<tr>
<th></th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Not Sure</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Project Sustainability</strong></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Project sustainability</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Monitoring and evaluation has enhanced sustainability of projects</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Policies and processes that facilitate participation and empowerment and resource sharing are adopted</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Staff members are empowered to use their own experience, knowledge, expertise and skills to work towards change</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>During the planning stage, staff members are allowed to define their own needs</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Stakeholders are involved when resources are being allocated and services developed at the planning stage</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Stakeholders are involved in the decision-making and planning process of the project</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Training and development is given to staff members</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Information is disseminated to the staff members</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Staff are sensitized by management on the objectives of the project</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Adequate funding is provided to support the projects</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Technical assistance is provided to the staff.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Project design allows flexibility and internalizes performance</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>There's access to inputs and markets</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>
Exit strategies are developed during project design phase and implementation

<table>
<thead>
<tr>
<th>Challenges faced in project sustainability</th>
</tr>
</thead>
<tbody>
<tr>
<td>There are overambitious objectives and high expectations that are poorly adapted</td>
</tr>
<tr>
<td>Inadequate attention given to the formulation of viable exit strategies</td>
</tr>
<tr>
<td>Inadequate financial and technical assistance</td>
</tr>
<tr>
<td>Conflict over objectives and/or strategies concerning the project</td>
</tr>
<tr>
<td>Economic and financial benefits are low, compared to investment and operational costs</td>
</tr>
<tr>
<td>Poor recruitment strategies</td>
</tr>
<tr>
<td>Unfavorable economic factors hinder project continuity</td>
</tr>
<tr>
<td>Inadequate training and remuneration of staff</td>
</tr>
<tr>
<td>Poor quality of inputs</td>
</tr>
<tr>
<td>Little trust and stakeholder involvement in project decisions</td>
</tr>
</tbody>
</table>

Table 4.4: Strategies of improving project sustainability

<p>| Strategies of improving project sustainability | | | | | |</p>
<table>
<thead>
<tr>
<th>Ensuring that the project is beneficial to the staff</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>The project should have defined the targeted beneficiaries</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>There is need for ensuring that staff are consulted on these projects</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Promoting team work and unity among staff</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Promoting transparency and accountability among the staff members</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Ensuring that the staff recruitment process follows clear criteria</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>The projects should have clear accountability structures</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>The project should have a developed monitoring and evaluation plan</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>The beneficiaries should have knowledge of the project objectives</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>The staff must fully participate in project activities</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>The branch managers and supervisors should be consulted and have endorsed the project</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>The implementation period should be realistic</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Technical assistance should be offered continuously</td>
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<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>There must be sufficient funds to implement the project</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

Thank you very much for your time.