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Exploring Information Technology Return on Investment Reports for Planning, Budgeting, and Implementation

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Walden University

College of Management and Technology

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Walden University
2019

Abstract

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for Planning, Budgeting, and Implementation

by

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MeGOV, École Polytechnique Fédérale de Lausanne, 2009

MSC, University of Greenwich, 1999

Doctoral Study Submitted in Partial Fulfillment
of the Requirements for the Degree of
Doctor of Business Administration

Walden University

April 2019

Abstract

The failure rate of new government information technology (IT) projects in developing countries is high, with 35% classified as total failures and approximately 50% as partial failures. The population for this study was 10 senior managers of a public sector organization in Uganda selected because of high IT project successes achieved through leveraging IT return on investment (ROI) reports. The purpose of this qualitative single-case study was to explore the strategies Ugandan senior public sector officials used to leverage IT ROI reports during planning, budgeting, and implementation of IT projects to reduce failure rates. The conceptual frameworks were the strategic IT alignment model and framework for success. Qualitative data were collected through face-to-face interviews and review of the organization performance reports. Member checking of interview and document review data were used to strengthen credibility of the findings. The following themes emerged: involve senior managers in IT ROI reporting; use previous IT performance reports during planning, budgeting, and implementation; empower project teams to undertake IT ROI performance assessment; ensure completeness of the IT ROI reports; ensure comprehensive monitoring and evaluation indicators for IT projects; ensure availability of periodic IT ROI reports; and implement a change management program. The findings may contribute to social change by providing key strategies senior public sector officials might leverage during planning, budgeting, and implementation of IT projects to reduce failures, lead to increased citizen access to e-government services, and promote transparent government.

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Dedication

This doctoral study is dedicated to the Almighty God, who guided and kept me healthy throughout the entire study period, and to my dear family members. Thank you so much for your moral support and encouragement during this academic venture.

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This doctoral study was made possible with the academic guidance of my supervisors, including first committee chair (Dr. Cheryl MacMahan- Professor Emeritus), first second committee member, and last committee chair (Dr. Diane M. Dusick), second committee member/methodologist (Dr. Natalie C. Casale) and URR (Dr. Ify S. Diala). Thank you for your cordial relationships throughout the study.

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Table of Contents

List of Tables.....	iv
Section 1: Foundation of the Study.....	1
Background of the Problem.....	1
Problem Statement.....	2
Purpose Statement	3
Nature of the Study.....	3
Research Question	5
Conceptual Framework	6
Definitions of Terms.....	7
Assumptions, Limitations, and Delimitations	9
Assumptions	9
Limitations.....	10
Delimitations	10
Significance of the Study.....	11
Contribution to Business Practice	11
Implications for Social Change	12
A Review of the Professional and Academic Literature	12
Strategic Alignment Model.....	14
Master Data Management Lifecycle.....	20
IT Return on Investment (ROI) Reports	23

Planning and Budgeting for IT projects.....	28
Electronic Government (e-government) Services.....	37
IT Investments	42
Transition and Summary	48
Section 2: The Project.....	50
Purpose Statement	50
Role of the Researcher.....	50
Participants	53
Population and Sampling.....	57
Ethical Research	58
Data Collection Instruments.....	60
Interviews	64
Document Review	65
Data Organization Techniques	65
Data Analysis.....	66
Compiling	67
Disassembling.....	68
Reassembling	68
Interpreting.....	69
Concluding.....	69
Reliability and Validity	70

Dependability	70
Credibility	71
Confirmability.....	71
Transferability.....	72
Transition and Summary	73
Section 3: Application to Professional Practice and Implications for Change	75
Introduction	75
Presentation of the Findings	75
Findings Related to the Conceptual Framework	106
Findings Related to Existing Literature.....	108
Applications to Professional Practice	109
Implications for Social Change	110
Recommendations for Action.....	110
Recommendations for Further Study.....	112
Reflections	112
Conclusion	113
References	115
Appendix A: Participants.....	151
Appendix B: Interview Protocol Open-ended Questions.....	152

List of Tables

Table 1	Strategies for Leveraging IT ROI Reports.....	77
Table 2	Senior Managers awareness and involvement in IT ROI reporting....	78
Table 3	Valuing importance of previous IT performance reports	83
Table 4.	Empowering Project Teams.....	86
Table 5	Completeness of IT ROI Reports.....	91
Table 6.	Comprehensiveness of M&E indicators for IT Projects.....	93
Table 7	Strategies for Ensuring Availability of Periodic IT ROI Reports.....	95
Table 8.	Change Management Issues.....	101

Section 1: Foundation of the Study

Across public sector institutions, employees use information technology (IT) in service-delivery processes. IT is vital to help productivity, innovation, performance of the economy, and future growth (Taghavi, Bakhtiyari, Taghavi, Olyae Attar, & Hussain, 2014). Employees use IT to improve public institutions' internal efficiency, eliminating paperwork and providing online public services. Taghavi et al. (2014) emphasized the need for government policymakers or service providers to reassess IT performance and identify areas to be addressed in future planning. The tendencies of public sector institutions to adopt IT applications in an ad hoc manner link to poor strategic planning, budgeting, and implementation processes. To be able to observe a meaningful IT ROI, there is need for evaluation and management of the deployment of IT in higher education institutions (Adedokun-Shittu & Shittu, 2016).

Background of the Problem

Poor approaches to IT planning and investments are not the result of any one factor or any one person but are influenced by the lack of understanding that IT is not a one-time investment (Cook & Sutherland, 2014). Fernandes, Alencar, Schmitz, and Correa (2014) emphasized it was in the general public's interests that government officials are provided with concepts, methods and tools that help them to optimize the results yielded by IT investments.

Cook and Sutherland (2014) noted failure to recognize the impact of IT investments on service delivery and operations led to poor approaches to IT planning and

investments. Poor approaches to IT planning and investments were due to lack of community or government comprehensive plans as a starting point or guide for IT investments (Cook & Sutherland, 2014). Traditional analytical approaches do not allow government leaders to identify and analyze the full range of public value impacts of their investments in a way easily incorporated into their decisions (Cook & Harrison, 2014). Lempinen and Rajala (2014) recommended future studies investigate more thoroughly the connection between user-perceived IT investment value and business output value in services.

Problem Statement

High failure rates have been reported in developing countries for e-government initiatives and IT for development projects (Dwivedi et al., 2015). The rate of failure for government IT development projects in developing countries is high, with 35% classified as total failures and around 50% as partial failures (Zhu & Kindarto, 2016). The general business problem was some senior public sector officials in developing countries lack adequate strategies to leverage IT ROI reports during planning, budgeting, and implementation of new projects to reduce failure rates (Pinto, 2013). The specific business problem was some Ugandan senior public sector officials lack strategies to leverage IT ROI reports during planning, budgeting, and implementation of IT projects to reduce failure rates.

Purpose Statement

The purpose of this qualitative single-case study was to explore the strategies Ugandan senior public sector officials use to leverage IT ROI reports during planning, budgeting, and implementation of IT projects to reduce failure rates. I collected data from participants in a single public sector organization because of successfully leveraging IT ROI reports during planning, budgeting, and implementation of IT projects to reduce failure rates. The implications for positive social change of this study include increased accessibility of e-government services by citizens and other stakeholders, increased citizen online participation in policy formulation, planning, monitoring and evaluation, governance, and promotion of transparent and open government.

Nature of the Study

The structure of this study was a qualitative research method involving interaction with individual senior public sector officials. Researchers use qualitative research methods to elicit in-depth and detailed insights into people's attitudes, beliefs, emotions, and experiences (Tong, Winkelmayr, & Craig, 2014). Qualitative research provides a vehicle for developing insights into the contexts of the reasons a phenomenon occurs (Patton, 2015). The qualitative research method enabled exploration of the strategies senior officials of the organization use to leverage IT ROI reports during planning, budgeting, and implementation of IT projects to reduce failure rates. I did not use a quantitative research methodology because, according to Bernard (2013), the quantitative research method requires collection of numerical data. Yilmaz (2013) noted that

quantitative researchers use numerical data to test hypotheses, measure results, and analyze data in order to generalize results, which was not the purpose of this study. Fakis, Hilliam, Stoneley, and Townsend (2014) stated the quantitative research method involves statistical and numerical data, but there was no way to consistently measure and statistically analyze responses and observations. Mixed methods research requires both quantitative and qualitative methods within a single research (Venkatesh, Brown, and Bala (2013), but I did not use both quantitative and qualitative methods because only a qualitative method was suitable for this study. Therefore, I used a single case study design.

Case study is appropriate when *how* and *why* questions are pertinent to the research, boundaries are relevant, and the context is important to the phenomena (Yin, 2014). The single-case study design enabled an in-depth focus on the context of the research within the boundary of public sector institutions and enabled me to understand in depth the strategies senior public sector officials use to leverage IT ROI reports during planning, budgeting, and implementation to reduce the failure rates of IT projects in developing countries' public sector institutions. Arghode (2012) stated that phenomenological design permits researchers to understand the unique lived experiences of participants, but that was not the focus of this study. Ethnography entails exploring common patterns of conduct, philosophies, and language within a cultural group through

observation (Schultz, 2012). Because I did not intend to explore common patterns of conduct and views within a cultural group, the ethnography approach was unsuitable.

Research Question

Başkarada (2014) avowed defining the research problem clearly was the most important step in the entire research project. With that in mind, I phrased the research question as: What strategies do Ugandan senior public sector officials use to leverage IT ROI reports to reduce IT project failure rates? The following open-ended interview questions were asked of each participant:

1. What were your experiences with the organization undertaking periodic performance assessments of ROI from IT?
2. What were the benefits from leveraging the IT ROI reports from the previous IT performance assessments during planning and allocation of budgets for the new IT projects?
3. What capacity existed in the organization to undertake periodic IT ROI performance assessments?
4. What were your experiences with whether the existing IT ROI reports provided sufficient information for planning, budgeting, and implementation?
5. What specific past data and information on IT ROI existed for evidence-based decision-making for the new IT investments for the organization?

6. What strategies did the organization use to ensure the availability of periodic IT ROI assessment reports leveraged during the planning, budgeting, and implementation of new IT projects?
7. What other issues affected the availability and leveraging of IT ROI reports during planning, budgeting, and implementation of new IT projects in the organization?

Conceptual Framework

The conceptual framework used for the study was the strategic alignment model by Venkatraman, Henderson, and Oldach (1993). The model is a framework to align business and IT strategy. Venkatraman et al. (1993) identified two factors for realizing value from IT investments: (a) alignment between business and IT strategy of the organizations and (b) a dynamic administrative process to ensure continuous alignment between business and IT strategy domains. The study conformed to the key concepts of the framework, ensuring proper and continuous alignment between business and IT strategy achieved through planning, budgeting, and implementation processes.

Another framework used for the study was the framework for success of White and O’Kane (2012), who emphasized master data management implementation activities using a standard metrics hierarchy to communicate standards for success and to objectively measure progress. White and O’Kane emphasized the master data management implementation activity cycle to comprise strategy formulation, evaluation, execution, and review. The focus of the study was on the leveraging of IT ROI reports to

enhance planning, budgeting, and implementation directly fitting within the master data management framework stipulations. The periodic monitoring and evaluation and performance review emphasis in the framework led to the availability of the IT ROI reports.

Definitions of Terms

Electronic government (e-government): Electronic government is the use of information and communication technology, particularly the Internet, as the means to improve government administration efficiency and deliver services to citizens, businesses, and other entities (Roushdy, 2012). Electronic government refers to the electronic provision of government information and services to citizens through the Internet (Ahmad Mousa, 2012). Norris (2010) pointed out e-Government is the outward applications of IT for various operations and functions, including G2C (government to citizens), G2B (government to business), and G2G (government to government).

Information technology (IT): Chi-Yo, Po-Yen, and Gwo-Hshiang (2012) defined information technology as the obtainment, procedure, storage, and propagation of sounding, drawing, and textual information by combining microelectronics-based computing and telecommunications. Nowadays, IT has spread further from the conventional personal computer and network technologies to integrations of other fields of technology such as cell phones, televisions, and automobiles (Chi-Yo et al., 2012). IT in government refers to inward applications (back-office applications) of IT in

government organizations for various routine operations or functions (Moon, Lee, & Roh, 2014).

IT investment: IT investment is the acquisition and implementation of computer hardware, computer software, telecommunications equipment, and other technologies to automate mission critical processes, analyze information, facilitate the delivery of all kinds of public services, and support decision-making at different managerial levels (Alencar, Fernandes, Assis Schmitz, & Correa, 2013).

IT ROI reports: IT ROI reports provide documented information arising from periodic performance assessments of IT investments (Alencar et al., 2013).

IT strategic planning and budgeting: IT strategic planning and budgeting is an opportunity for an organization to analyze its internal and external environment, outline IT needs, and develop an operational plan and budget for IT implementation (Jaana, Teitelbaum, & Roffey, 2012).

Master data: Master data are the data describing the most relevant business entities, on which the activities of an organization are based, for example counterparties, products or employees (Spruit & Pietzka, 2015). Master data identifies and describes central business objects in organizations consisting of customer, product, and vendor data domains (Vilminko-Heikkinen & Pekkola, 2017). Master data describe the main characteristics of objects in the real world (Spruit & Pietzka, 2015).

Master data management (MDM): MDM is a collection of data management practices that are orchestrated by key stakeholders, participants, and business clients

(Vilminko-Heikkinen & Pekkola, 2017). Vilminko-Heikkinen & Pekkola (2017) stated MDM uses business applications, information management methods and data management tools to implement policies, services, and infrastructure to support the integration and sharing of accurate, timely, consistent, and complete master data.

Assumptions, Limitations, and Delimitations

Simon (2011) stated researchers are critically restricted in many ways when conducting scholarly research. During the study, I endeavored to observe assumptions, limitations, and delimitations aspects to achieve credible research findings. Gautam (2012) stated assumptions may be asserted as facts concerning a study, but a researcher does not attempt to prove them.

Neutens and Rubinson (2010) defined limitations as the parameters or boundaries of the research established by factors or people other than the researcher and may influence the results of the study. Cottrell and McKenzie (2005) defined delimitations as the parameters or boundaries placed on a study by the researcher to limit and clarify the scope of the study. While research questions indicate the scope of the dissertation, the delimitations clarify what was not examined helping to shape the readers' expectations for the dissertation research (Sampson, 2012).

Assumptions

Yin (2014) stated assumptions are the facts that the researcher assumes to be true but cannot verify. I conducted this study based on the following three assumptions. First, I assumed accurate and ethical interpretation and analysis of the collected data. Second, I

assumed the semi-structured interview questions are sufficient, therefore the interview participants provided detailed answers. Third, the study included unbiased findings. Simon (2011) stated assumptions were so basic, that without them, the research problem would not exist.

Limitations

Limitations outline the shortcomings of a research study (Brutus, Aguinis, & Wassmer, 2013). The first limitation was the level of my personal bias control after working in the IT field both in public and private sector for over 25 years. The second limitation was the planning and financial experts' negative bias about the IT investments taking big a portion of organizational budgets. The third limitation was the limited appreciation by employees about the immense contribution of IT to public sector organizational performance. The fourth limitation was the time allocated to the qualitative case study research design responses to questionnaires, as participants were busy people. The fifth limitation was the employees' cautiousness in volunteering information related to government processes and procedures. The sixth limitation was the level of participants' honesty and forthrightness.

Delimitations

Delimitations are guidelines that provide the boundaries of the study (Welch, 2014). For the first delimitation, I focused on only one of the critical issues, the strategies used to leverage IT ROI reports to improve planning, budgeting, and implementation that impact the success of e-government services implementation in the public sector

institutions. The second delimitation was the questionnaire, which included questions focusing on the M&E of IT projects, IT ROI performance assessments, IT ROI report utilization during planning and budgeting, and the allocation of IT budgets. The third delimitation was the study population of senior and experienced public sector officials serving on IT planning, budgeting, and implementation committees in the organization.

Significance of the Study

Poor planning and budgeting have had a profound negative effect on the realization of e-government services in Uganda (Karunasena, Deng, & Singh, 2011). I explored the strategies Ugandan public sector institutions use to leverage IT ROI reports during planning, budgeting, and implementation of IT projects to reduce failure rates. The results of the study might fill a gap in the existing knowledge of effective planning, budgeting, and implementation of IT projects in public sector institutions.

Contribution to Business Practice

The outcome of the study might contribute to the effectiveness of the organization by providing further insights to the top management, planning and budgeting, and implementation teams to strengthen the strategies used to leverage IT ROI reports during planning, budgeting, and implementation to reduce IT projects failure rates. To inform other Ugandan public sector institutions about the strategies used to leverage IT ROI reports during planning, budgeting, and implementation to reduce IT project failure rates, I will share the findings of the study with the key institutions that coordinate and manage national IT planning, budgeting, and implementation, including the Office of the Prime

Minister; Ministry of Finance, Planning, and Economic Development; Ministry of ICT and National Guidance, National Planning Authority; and National Information Technology Authority-Uganda.

Implications for Social Change

This study has potential implications for positive social change, including an increase in accessibility of e-government services by citizens and other stakeholders. In addition, it may increase citizen online participation in policy formulation, planning, monitoring and evaluation, governance, and promotion of transparent and open government.

A Review of the Professional and Academic Literature

The purpose of this qualitative single-case study was to explore the strategies Ugandan public sector institutions use to leverage IT ROI reports during planning, budgeting, and implementation of IT projects to reduce failure rates. The study relates to the conceptual framework of the strategic alignment model of Venkatraman et al. (1993) and master data management implementation activity lifecycle of White and O’Kane (2012). The Venkatraman et al. (1993) model also emphasized alignment of business and IT, with the White and O’Kane (2012) framework also emphasizing the master data management implementation activity cycle comprising strategy formulation, evaluation, execution, and review.

A comprehensive literature review, which enhances the face validity of a study, should identify relevant gaps in the literature and relate them to the research questions

(Baškarada, 2014). In preparation to conduct the study, I searched for professional and academic literature from Walden University online library, other university online libraries, international journals, government websites, and peer-reviewed articles. The literature review related to the central research question for the study. The literature covers (a) strategic alignment model, (b) master data management implementation activity lifecycle, (c) IT return on investments (ROI) reports, (d) planning and budgeting for IT projects, (e) electronic government (e-government) services, and (f) IT investments.

The strategies that I used in locating the sources of articles included documentation of database and universal resource locator (URL) of articles and tips grasped from the research methodology course. The literature review included the analysis of existing studies related to the two conceptual frameworks and analysis of contrasting and supporting theories. The key words that I used to search the literature were: *IT alignment model, strategic IT alignment, master data management, data management, IT return on investments, strategic planning for IT projects, IT project planning and budgeting, IT project planning, IT project budgeting, electronic government (e-government), and IT investments*. In addition, I searched and synthesized previous studies on IT project performance assessments and MIS data on IT ROI for IT investment planning.

In total, the study included 231 references, with 81 citations in the review of the professional and academic literature. Out of the 81 references, 71 (88%) were published

after 2014. Eighty (98%) of the references are peer-reviewed articles. Out of 81 references, 71 are journals, nine are doctoral dissertations, and one is a government report.

Strategic Alignment Model

Huang (2014) supported IT planning and strategy to help firms to implement strategic plans and achieve operational objectives and competitive advantages. Huang emphasized that the key strategic IT management challenges lie in the identification of strategic dimensions that require modification under different contingencies for enhancing organizational performance. Huang related his study to the Venkatraman et al.'s (1993) IT alignment model developed to promote aspects related to IT alignment. This study is in line with the Venkatraman et al.'s (1993) model and should add to the existing research knowledge on IT alignment. Integration between business units and IT requires strategic alignment, as facilitating the relationship for understanding the mechanisms implemented between parties is important for success (Wu, Straub, & Liang, 2015).

Researchers continue to build on empirical evidence that reveals positive effects of IT alignment on business performance (Coltman, Tallon, Sharma, & Queiroz, 2015). Coltman et al. emphasized the organizations would perform well when key IT resources, including physical IT infrastructure components, technical and managerial, IT skills, and knowledge assets are well aligned with the business strategy. Coltman et al. also noted

that organizations performed well when managers were able to supervise the deployment and alignment of IT resources with the business.

The Coltman et al. (2015) observation is similar to Venkatraman et al. (1993), who stated managers have to make appropriate choices to position the firm among a complex set of choices reflecting both strategic and functional perspectives. Coltman et al. asserted throwing money at instances of misalignment is wasteful and misguided in IT investments. Coltman et al. (2015) concluded by acknowledging other studies on IT alignment as having a positive and direct effect on firm agility and that a greater IT alignment improves a firm's performance (Gerow et al., 2014; Yayla & Hu, 2012). Coltman et al. (2015) recommended that researchers carry out further adaptive research to extend the knowledge of IT alignment with changing globalized and competitive business environments.

Wagner, Beimborn, and Weitzel (2014) acknowledged IT and business resources need alignment to achieve organizational goals and observed that year after year, chief information officers still name business IT alignment a key challenge for IT executives and examined why common suggestions such as "communicate more" are insufficient to strengthen IT and business alignment. Wagner et al. also stated that social capital between IT and business units drive alignment and IT business value. In this case, enhanced communication requires seamless information-sharing among the project implementation team, management, and stakeholders. Enhanced communication should raise awareness of the benefits of the implementation progress of a project.

Wagner et al. (2014) acknowledged the IT alignment model of Venkatraman et al. (1993) and recommended further research on the interplay between strategic and operational IT alignments. The Wagner et al. article also emphasized enhancement of communication as key to raising awareness on project benefits through IT business alignment. Orozco, Tarhini, Masa'deh, and Tarhini (2015) identified specific management practices that can help to improve the process of information systems (IS)/business alignment and the design of information technology governance (ITG) architecture. After data analysis, Orozco et al. proposed a framework to be used as a reference to classify relevant management practices in the process of IS/business alignment and design of ITG architectures. Orozco et al. also found that strengthening the connection of budgetary controls at operational and tactical levels improves the coordination of the IT investment management process.

Strategic alignment of IT is an important concern for both researchers and practitioners (Rahrovani, Kermanshah, & Pinsonneault, 2014). Rahrovani et al. (2014) emphasized that while it is important to understand the state of alignment in current IT operations, it is equally important to assess the alignment of the portfolio of IT applications in development requiring organizational leaders to measure alignment in IT projects and realize misalignments in advance. Rahrovani et al. (2014) affirmed understanding portfolio alignment guides decisions for initiating future IT projects in ways that increase global IT project portfolio alignment. Rahrovani et al. argued the strategic impact of IT not only depends on alignment of the existing IT operations but

also pertains to the alignment of developing systems for future operating applications. Alignment of existing IT operations and future operating applications calls for simultaneous monitoring, control, and planning (Rahrovani et al., 2014). Rahrovani et al. related the study to the Venkatraman et al. (1993) IT alignment model, which was developed to promote IT alignment aspects. This study is in line with the Venkatraman et al. model and should add to the existing research knowledge on IT alignment.

Barnes (2017) noted creating value from IT projects requires linking the projects to the corporation's business strategy. By examining the relationships among project alignment, performance outputs, and project success rates, Barnes' study revealed both IT project alignment and performance outputs are highly correlated with project success rates. Barnes's report on project alignment at the operational level emphasizes adherence to the business-IT alignment requisites required by the Venkatraman et al. (1993) model.

Managers should concentrate on and put special emphasis on control mechanisms to support and monitor the IT investment management process (Orozco et al., 2015). Orozco et al. (2015) emphasized appropriate practices critical to the attainment of IT investment management. Venkatraman et al. (1993) further defines the alignment between business and IT as the degree of fit and integration among business strategy, IT strategy, business infrastructure, and IT infrastructure. Considering Orozco et al. (2015) emphasis on IT investment management, the business-IT alignment process needs to be carefully undertaken during IT investments conceptual designs.

Little or no research has been carried out recently on the people engaged in the real work of IS strategy in actual practice(s) despite earlier interest (Peppard, Galliers, & Thorogood, 2014). Peppard et al., (2014) also discovered that strategic planning for information systems involves multiple stakeholders working as a team with constant feedback among themselves about the continuous assessment of IS planning effectiveness. Peppard et al. confirmed the critical factors of stakeholder participation, teamwork, and communication for effective IS strategic planning and identified core components and dynamics that constituted a richer, more multi-dimensional view of IS strategy implementation (alignment) process linked to the Venkatraman et al.'s (1993) IT alignment model. Peppard et al. emphasized the need for more research of information systems strategy planning and recommended promoting communication during that process.

Researchers have intensively carried out cumulative research on alignment between business and IT and the topic remains one of the top concerns of executives (Vermerris, Mocker, & Van Heck, 2014). Vermerris et al. (2014) identified the following key antecedents of IT alignment: (a) management commitment, (b) communication, (c) shared understanding, and (d) IT investment evaluation. Vermerris et al. confirmed top managers' commitment to the alignment of IT plans with business plans, frequent communication between users and IS departments, plans in the business strategy were shared and supported by IT strategy, and evaluating IT investments proved an important enabler of strategic alignment. Vermerris et al. concurred with other authors that IT

investment evaluation was an important enabler of business-IT alignment (Venkatraman et al., 1993; Sledgianowski & Luftman, 2006). The investment evaluation is evaluating IT investment through frequent and formal IT assessments and reviews (Sledgianowski & Luftman, 2006). Vermerris et al. emphasized the importance of IT alignment to business to integrate IT applications in the strategy of organizations.

Lack of assessment or consideration for the extent of project alignment with the firm's objectives may preclude the project's likelihood for success from the outset (Chillingworth, 2015). Utilizing the *Feasibility Formula*TM tool and methodology, Chillingworth (2015) investigated the need for an effective pre-project feasibility tool and accompanying stakeholder engagement, or facilitation methodology. Chillingworth found that the *Feasibility Formula*TM contributed to the assessment of IT project alignment with organizational goals. In conformity with Venkatraman et al. (1993) business-IT alignment strategy, Chillingworth confirmed the absence of carrying out examinations of the favorable alignment of contemplated projects with the organization's strategic goals could jeopardize a project's likelihood for success from the outset. Chillingworth concluded that strategic assurance of IT alignment better positions the firm's competitiveness.

The alignment between balanced scorecard concepts (BSC) and IT strategic planning (ITSP) offers a systematic approach that guide the definition of IT directions in alignment with business units and strategic priorities (Tonelli, Bermejo, & Zambalde, 2014). Tonelli et al. (2014) formulated guidelines for IT alignment to business, capacity

and performance evaluation, IT strategic planning, IT tactic planning, and ITSP results on socialization and closure to mitigate common IT strategic planning challenges of expansion of ITSP frontiers and interaction between IT and other organizational units in the planning process. Emphasized by Tonelli et al.'s formulation of IT strategic planning guidelines is key to successful business IT alignment in organizations.

The conceptual framework studies presented here relate to the Venkatraman et al.'s (1993) IT alignment conceptual model developed to promote IT alignment to business strategy. Under this section, the reviewed conceptual framework studies emphasized good IT plans aligned to overall business strategies to achieve operational objectives and competitive advantages. Additionally, authors of the reviewed conceptual framework studies stressed enhancement of communication as key to raising awareness on project benefits through IT business alignment. The conceptual framework studies in the strategic alignment model section of this study reaffirm the relevance of the Venkatraman et al.'s IT alignment conceptual model to the study.

Master Data Management Lifecycle

The master data management lifecycle reference model focuses on the analysis of strategic, tactical, and operational IT improvement areas in organizations (Hubert Ofner, Straub, Otto, & Österle, 2013). The strategic, tactical, and operational improvement areas relate to the aspect of performance assessment with continuous data collection to inform organization strategy improvement. Hubert Ofner et al. (2013) related the reference model to White and O'Kane's (2012) framework that promoted a master data

management implementation activity cycle that consisted of strategy formulation, evaluation, execution, and review.

Project knowledge management focuses on data management and transformation into knowledge and knowledge-related outcomes (Lech, 2014). Lech (2014) supported White and O’Kane’s (2012) reference model that emphasize master data management implementation aspects. Vilminko-Heikkinen and Pekkola (2017) noted integration of data management practices into organizations’ business strategies is not a simple task. Vilminko-Heikkinen and Pekkola investigated a new understanding of the challenges in establishing and developing the master data management (MDM) function within an organization. Vilminko-Heikkinen and Pekkola found legislation-driven challenges, mutual understanding of master data domains, and level of granularity for defining master data sets as the new challenges. Within the public sector, Vilminko-Heikkinen and Pekkola (2017) found a unified and appropriate level of granularity set up to keep the master data models and data structures manageable. In conformity with White and O’Kane (2012) framework that emphasized MDM implementation aspects, Vilminko-Heikkinen and Pekkola reported pivotal issues: (a) attention to the identification of data owners, (b) organizational roles and responsibilities, and (c) unified data definitions, as critical to the realization of an MDM function within organizations.

Many companies lack sufficient data management strategies to exploit the existing amount of data (Spruit & Pietzka, 2015). Correct, available, and timely company data is of value and competitive advantage (Spruit & Pietzka, 2015). Spruit and Pietzka’s

(2015) study on Master Data Maturity Model (MD3M) covered data considered as master data, how the data was structured, which systems used what data, and where the data was stored. Related to the White and O’Kane’s (2012) framework, Spruit and Pietzka promoted a master data management implementation activity cycle consisting of strategy formulation, evaluation, execution, and review with data model, data quality, usage and ownership, data protection, and maintenance key topics. According to Spruit and Pietzka, there is need for the formulation of effective and comprehensive organization data management strategies.

The reviewed conceptual framework studies relate to the White and O’Kane (2012) framework, promoting a master data management implementation activity cycle comprising of strategy formulation, evaluation, execution, and review. The reviewed conceptual framework studies by Hubert Ofner et al. (2013), Lech (2014), Spruit and Pietzka (2015), and Vilminko-Heikkinen and Pekkola (2017) emphasized master data management implementation activities geared towards improved data-informed decision-making in strategy review and planning, monitoring and evaluation, and advocacy. In addition, Hubert Ofner et al.’s (2013), Lech’s (2014), Spruit and Pietzka’s (2015), and Vilminko-Heikkinen and Pekkola’s (2017) conceptual framework studies in the master data management implementation activity lifecycle section reaffirmed the relevance of the White and O’Kane (2012) framework promoting a master data management implementation activity cycle comprising strategy formulation, evaluation, execution, and review.

IT Return on Investment (ROI) Reports

Technology investment frameworks may contribute to the effectiveness of organizational leaders' investment decisions (Lee, 2017). Lee (2017) found defining investment options during the early stages of technology planning helps to reduce investment risks. Companies may increase knowledge of the risks by using risk assessment reports to make technology decisions (Lee, 2017). Lee underscored the benefits of carrying out ROI assessments to evaluate the benefits of IT investment to inform decision making.

In organizations, there is complexity of measuring the ROI for technology adoption to harmonize the old and new IT investment goals (Grudin, 2017). Grudin (2017) recommended a demonstration of a meaningful productivity benefit to make cases for IT investment adoptions. Grudin emphasized harmonization of old and new IT investment goals to ensure value for money.

Stakeholders concerned with maximizing IT ROI recognize the importance of central comprehensive information resources to effective strategic business planning (Alryalat, Adebaye, & Alryalat, 2017). Alryalat et al. (2017) measured the relationship between strategic alignment of IT investment returns and corporate performance and provided empirical evidence that closer alignment between corporate and IT strategies led to increased IT ROI and improved corporate performance. The measurement of the relationship was possible because of the central comprehensive information resources from the previous IT investment reports. Alryalat et al. also found a positive relationship

between early adoption of newly emergent technologies and business competitive advantage that led to positive conclusions that strategic competition was imperative towards corporate performances. Alryalat et al. underscored the need for the availability of comprehensive information resources to inform the strategic IT investment business planning.

ROI measurement requires collection of credible, comparable, complete, and transparent M&E indicator data (Schueler, Stanwick, & Loveder, 2017). Schueler et al. (2017) stressed any ROI model must be supported by useful and practical M&E indicators. Schueler et al. recommended the need for the leaders to consider ROI when setting up M&E data collection and reporting systems and linking to the objectives of the ROI measurement. Das and Ngacho (2017) identified individual six CSFs for credible data: (a) project-related, (b) client-related, (c) consultant-related, (d) contractor-related, (e) supply chain-related, and (f) external environment-related factor for regular monitoring, evaluation, and reporting. M&E reports provide investment performance data during the measurements of ROI (Schueler et al., 2017).

Performance metrics are an essential element of capital project benchmarking (Yun, Choi, de Oliveira, & Mulva, 2016). Due to rapid changes in the business environment, Yun et al. (2016) stressed the need for a more effective and flexible measurement tool to evaluate performance during the course of an on-going project and to align business strategies with project management. The executives and project managers use M&E metrics to measure project performance at different project

implementation phase-levels in order to establish proactive strategies to improve performance. Monitoring and evaluation are vital components of project success as they imply overseeing the process of implementation and at the same time judging the worth of the project (Maalim & Kisimbii, 2017). Maalim and Kisimbii (2017) noted there was increased pressure from government, civil society, and private sector demanding proper project governance, accountability and transparency during project implementation.

Sangar and Iahad (2013) explored the critical success factors (CSFs) of business intelligence system (BIS) implementation from the perspectives of both management and technology. Sangar and Iahad underscored BIS pre-implementation, including BIS data collection, verification, and data analysis for report preparation. Sangar and Iahad also noted that reports provided additional value in decision-making through the utilization of the intelligence created during the pre-implementation phase. In addition, Sangar and Iahad enumerated system-perceived usefulness and learnability as one of the seven CSFs for effective BIS implementation as BIS usefulness and learnability both relate to ROI value. Sangar and Iahad called for more empirical research to better understand the various roles played by different stakeholders and how they evaluate the success of a BIS implementation.

When it comes to technology projects, the value of an investment definition is determined by its educational not financial return (Krueger, 2013). Krueger (2013) noted demand for ROI reports had become increasingly common in organizations operating with limited financial budgets to ensure value for money. Krueger underscored the

reward for carrying out periodic ROI to support informed decision-making to provide a clearer understanding of the projected benefits of technology investment. Bar-Dayyan et al. (2013) assessed the cost-savings of incorporating a list of preferred specialty care providers into electronic health records (EHRs) used by all primary care physicians accompanied by a comprehensive implementation plan. Bar-Dayyan et al. established that EHRs could facilitate both the effective utilization of healthcare providers and decrease costs. The results of the study underscored the need for continuous determination of cost savings through ROI assessments to inform management during planning and budgeting for further investment in an EHR. Bar-Dayyan et al. concluded cost-savings program exist, but computerization, which allows the implementation in a highly effective manner, was an excellent platform for economic efficiency. Bar-Dayyan et al. (2013) also emphasized the benefits of continuous ROI assessments as a source of information for management decision-making during planning and budgeting.

Despite continuous investments in IT, the returns have been far from expectations of managers in the organizations (Uwuigbe, 2014). Uwuigbe (2014) noted senior managers requested project teams to undertake quarterly and annual IT investment returns assessments. The quarterly and annual IT investment assessments culminated in the preparation of reports that business and IT managers used to plan and budget properly for the new IT investments. Uwuigbe's findings demonstrated the importance of continuous assessment of IT investments to provide the IT ROI investment reports.

Uwuigbe recommended further research to develop academic literature on IT investment and IT business value creation.

Studying critical success factors (CSFs) for the successful implementation of e-government is essential (Napitupulu & Sensuse, 2014). Napitupulu and Sensuse (2014) found of the 55 CSFs identified, good planning and user/stakeholder involvement was at the top of the list. Napitupulu and Sensuse also noted the need for enough funding and good coordination among all project participants and stressed the importance of good planning and stakeholder participation in the implementation of e-government initiatives.

Government leaders and e-government advocates continually seek to provide efficient transactions and services from e-government initiatives to achieve both strategic and institutional benefits (Alenezi, Tarhini, & Masa'deh, 2015). Alenezi et al. (2015) noted the achievement of efficient transactions and e-government services benefits may be dependent on the information quality and systems quality regarded as significant factors in the adoption of e-government websites. Alenezi et al. stated in sharing information with citizens or within governmental organizations, high-quality information enables participants to gain different types of benefits from such projects. Alenezi et al. listed strategic planning techniques as one of the key factors in the success of IT initiatives to facilitate e-government services provision. Alenezi et al. found the limited research on information quality and organizations performance focus on private sectors and pay little attention to governments and public organizations.

The reviewed articles in this section were primarily about periodic IT implementation progress assessments to enrich ROI reports, with different authors emphasizing the importance of periodic monitoring and performance measurement of IT investments as one of the critical success factors. The periodic monitoring and performance measurements form the backbone of ROI reports for different organizations. Uwugbe (2014) stressed IT investment values on system usage, information value, user satisfaction, and service quality. Researchers Alenezi et al. (2015), Sangar and Iahad (2013), and Alryalat et al. (2017) underscored the need for more studies on information quality and organizational performance as a result of investing in IT projects.

Planning and Budgeting for IT projects

IT projects for a firm require a significant investment of up to 10.5% of revenue (Thompson, Ekman, Selby, & Whitaker, 2014). Thompson et al. (2014) noted managers responsible for aligning IT investments with firm's strategy seek to minimize technology costs while ensuring the IT infrastructure accommodates increasing utilization, new software applications, and modifications to existing software applications. The Thompson et al. model supports the decision process used by firms incorporating their data and including expectations of how future business conditions may affect the need to make IT changes. Hidding and Nicholas (2017) emphasized as a project management practice, all key stakeholders should understand and agree on the project's purpose, value-added outcomes, measures of success, and have a personal stake in the success or failure. The project management practice emphasis by Hidding and Nicholas

demonstrated a holistic IT project strategic planning approach that leveraged information from the previous IT project reports. Afolabi (2018) stressed key principal project stakeholders need to work together during planning and implementation of information system projects. Afolabi and Hidding and Nicholas underscore the need for stakeholder participatory planning and implementation of IT projects.

IT investment reduces reporting lag by automating and simplifying the financial reporting and closing process (Johnston & Zhang, 2018). Johnston and Zhang (2018) noted the rapidly increasing use of IT had substantially changed the way business was conducted, internal controls were implemented, and financial reports were produced. In addition, Johnston and Zhang acknowledged IT may be harnessed to automate the financial reporting process by reducing the delay in reporting earnings and completing audits. Johnston and Zhang stressed as managers increase spending on IT assets, they need to be aware of the possible returns on the investments. To ensure timely preparation of financial reports and closing process, business process automation was inevitable (Johnston & Zhang, 2018).

Managers and IT decision-makers need planning and budgeting technical support to align IT investments with a firm's strategic objectives (Thompson, Ekman, Selby, & Whitaker, 2014). Thompson et al.'s (2014) model enables a firm's decision maker to identify the breakpoints that define alternate courses of action and present an opportunity for firms to effectively plan and budget for IT infrastructure using analytical results. Resourceful planning is important prior to starting an IT project to improve success of

implementation (Scheuchner, 2017). Allen et al. (2014), Martens and Vanhoucke (2017), and Scheuchner (2017) emphasized the importance of strategic planning as one of the key strategies to promote IT project success. Martens and Vanhoucke affirmed the identification of a project's fundamental metrics provides a basis for analyzing and assessing progress of a project. Mishra et al. (2015) and Das and Murray (2015) concurred on the three types of risks associated with different project phases: (a) complexity, (b) contracting, and (c) execution risks. Mishra et al. defines complexity risks as risks arising from inherent technological uncertainties, and the inter-dependent nature of tasks associated with a project during the planning process. Contracting risk may arise from various aspects of the contracting relationship, and execution risk refers to disruptions in the progress of a project due to unforeseen situations or uncertainties during its execution (Mishra et al., 2015). In the presence of high risk, increasing the quality of planning improves project efficiency, and in presence of low risk, planning improves project effectiveness (Zwikael, Pathak, Singh, & Ahmed, 2014). Zwikael et al. (2014) stressed the importance of planning depends on the level of project risk and the success measure targeted.

Strategic planning helps enterprises set priorities, focus capabilities and resources, strengthen operations, and ensure stakeholders work towards common goals (Azevedo, Van Sinderen, Pires, & Almeida, 2015). Azevedo et al. (2015) emphasized the aligning of enterprise architecture (EA) with strategic planning and EA transformations. Azevedo et

al. recommended the introduction of strategic planning concepts to the EA frameworks to avoid ambiguity and communication problems.

Galy and Saucedo (2014) investigated the post-implementation practices of ERP systems and their relationship to financial performance and found that cause-and-effects include how the increase in technological competence affects net sales, relationships with outside experts, return-on-assets, and ROI. Galy and Saucedo found top management support affects net sales and net income, that long-range planning negatively affects earnings, and that sharing of information between departments affects net income. Galy and Saucedo also acknowledged top management support affects return-on-assets and RIO, identifying two aspects of top management support: long-range planning, and sharing of information key in effective planning and budgeting for IT projects. The study questions in the interview protocol of this study hinged on the Galy and Saucedo management aspects and underscored the importance of linkages between financial and nonfinancial performance measures.

Galy and Saucedo (2014) also stressed the cause-and-effect relationship communication to managers to strengthen financial links. This consideration strengthens the use of the ROI reports during the planning and allocation of requisite financial resources to the IT project interventions. Galy and Saucedo recommended further research to determine which factors contribute to the highest success and failure rates the ERP implementation and provided empirical evidence to support a cause-and-effect

relationship of managerial actions to financial performance at the post-ERP implementation stage.

Wu, Straub, and Liang (2015) investigated how IT governance mechanisms and strategic alignment influence organizational performance, asserting that strategic alignment should be a top priority for business and IT executives. Wu et al. (2015) emphasized the lack of theory-based empirical research on the relative importance of the factors affecting strategic alignment and drew upon the resource-based view of the firm providing guidance on how strategic alignment can mediate the effectiveness of IT governance on organizational performance. Wu et al. stated IT governance is concerned with IT project selection and prioritization issues and indicated that IT governance deals with sharing authority between business partners, IT management, and service providers.

In addition, Wu et al. (2015) emphasized, although most IT-related activities still rely heavily on IT professionals, non-IT CEOs need to realize the criticality of IT alignment to corporate strategic objectives. Wu et al. acknowledged strategic alignment and planning are a top managerial concern since the beginning of the IS specialty and its positive effects on a firm's performance had been well established in previous research. Wu et al. also indicated IT governance mechanisms are unique to the organization in that they provide the contextual setting for business and IT people to be involved in IT decision-making and knowledge sharing to enhance IT support for business objectives. Participants selected for my study are decision makers in the planning, budgeting, and

implementation of IT projects in the organization. Wu et al. emphasized the effect of IT governance structures on strategic alignment and planning.

Wu et al. (2015) also found centralization of IT decisions affects top managers' knowledge of IT. Knowledgeable top management teams facilitate business managers' participation in strategic IT planning. Wu et al. underscored IT managers' participation in business planning enhances business-IT strategic alignment and presented the importance of communication to enhance knowledge sharing among IT and business executives and a shared understanding of the role and capabilities of IT. Wu et al. added IT and business managers are more likely to sense market opportunities or threats and build consensus around particular IT projects and different departmental managers should be involved for the success of IT projects.

Stakeholder engagement and communication on project success involves providing decision makers with the required data and feedback to ensure alignment among project objectives and stakeholders expectations (Alqaisi, 2018). Alqaisi (2018) reported one of the projects that neglected the proactive planning and management of stakeholders' requirements experienced time and resources wastage. Alqaisi stressed the project teams undertake proactive planning and engage stakeholders to avoid time and resource wastage.

IT leaders serve as key actors in the networking and communication for IT projects (West, 2017). The outcome of IT projects failures are a result of poor communication between actors in a network (Herteliu & Despa, 2014). West (2017), and

Herteliu and Despa (2014) concurred on the importance of functional communication networks for IT projects success. Organizations can meet the need for knowledge and gain competitive advantage by enabling employees to share knowledge efficiently (McGrane, 2016) conforming to Sheng and Hartono (2015) finding knowledge sharing had been positively linked to improved firm performance. Top management need to lead stakeholder engagement and communication activities to ensure project success.

Bannister and Connolly (2014) investigated the relationship between ICT, transformative government and public values, and reported that ICTs can and do have a transformational impact on public values, though not always for the better. Bannister and Connolly affirmed deployment of ICT require judgments about and sometimes choices between values. This requirement was about proper planning for ICT deployment. Bannister and Connolly emphasized observation of values as a potential powerful lens for considering ICT effects.

Denbo and Guthrie (2014) produced a model with numerical scores to use to rank potential IT projects, acknowledging that projects with higher scores return more value to the organization. Denbo and Guthrie found organizations prioritizing projects with more visibility and lower returns have a higher success rate than those with less visibility and offer greater returns. ROI was one of the measurement tools for determining the potential of the IT projects. Denbo and Guthrie called for the improvements in the value organizations derive from IT investments to facilitate achievement of their business goals.

Jafari (2014) noted the limitations of a capital budget included forcing the managers to look for more wise investment in IT and establish the strategic role of IT in organizations, the IT cost structure, a firm's IT structure, senior management support, and organizational learning as important factors affecting the cost-cutting technique selection in IT. Jafari's (2014) framework focused on the strategic role of IT in business with best cost-cutting techniques applications and emphasized saving costs while ensuring high-quality service, supporting business growth, and maximizing business value from IT spending.

Sun, Ni, and Lam (2015) noted an ERP system could be a powerful weapon for enhancing a company's competition, with its implementation becoming risky if no proper planning and management are in place. Sun et al. noted that a failure survey in 2013 showed 54% of ERP projects reported to be a cost overrun, 72% were time overrun, and 66% of the enterprises implementing ERP software initiatives received less than 50% of anticipated measurable benefits. Sun et al. reported a major remedial action by a working committee was to review the IT infrastructure requirements and to firm up the IT budget. In this case, reviewing of the IT requirement involves planning for the ERP and allocation of the requisite budget. Sun et al. concluded that company implementation teams need active involvement in the process of performance assessment of ERP projects at each stage, with ROI as one of the tools in use.

Malapile and Keengwe (2014) examined technology planning opportunities and challenges in developing countries, technology-planning trends in schools, and existing

technology-planning models in school districts in those countries. Malapile and Keengwe acknowledged there was insufficient literature on how three tiers of government can facilitate systemic technology planning in education and emphasized many aspects of technology planning in schools, including professional development, equity and access issues, curriculum integration, implementation, relevant indigenous policies, and online content. Most government officials in developing countries lack the technology planning knowledge and skills in educational technology (Malapile & Keengwe, 2014). Business leaders need a competent workforce to achieve a competitive advantage in the changing business environment (Rabogadi, 2017). Malapile and Keengwe, and Rabogadi (2017) concurred on the need for knowledgeable and skilled government officials to undertake IT planning for value added business competitive advantage.

Chae, Koh, and Prybutok (2014) reexamined the existence of a positive link between information technology capability and firm performance in the 2000s. Chae et al. found no significant link between IT capability and firm performance after many firms adopted web technologies and enterprise applications. Chae et al. observed since the early 1990s, IT had undergone a dramatic transformation and the value of having superior IT capability may no longer directly translate into superior business performance. Chae et al. also stated the advent of the Internet, prevalent outsourcing, and increasing adoption of ERP packages are the key enablers of the IT transformation and recommended future research on alternative methods to assess an overall IT capability that would be more stable over a longer period. Under the planning and budgeting for IT projects section

above, I emphasized a firms' capacity to effectively plan and budget for IT infrastructure. The articles by Galy and Saucedo (2014), Denbo and Guthrie (2014), and Sun et al. (2015) included recommendations to expand the leveraging of IT ROI reports to enhance planning, budgeting, and implementation. Bannister and Connolly (2014) and Wu et al. (2015) emphasized the effect of IT governance structures on strategic alignment and planning, and I emphasized the strategies used to leverage IT ROI reports for evidence-based IT planning, budgeting, and implementation principles. My aim was to determine strategies that can help improve planning, budgeting, and implementation of IT projects by using IT ROI reports and business simulations to improve decision-making.

Electronic Government (e-government) Services

Strategic planning, funding, top management support, awareness, and citizen centric approach are readiness factors for e-government adoption (Keramati, Behmanesh, & Noori, 2018). Readiness factors play a moderating role in the relationship between e-government factors and e-government outcomes (Keramati et al., 2018). Gupta, Singh, and Bhaskar (2016) reported after the approval of the Government of India National e-Governance Plan (NeGP) in 2006, various IT initiatives were put in place to promote the adoption and usage of e-government services. IT projects were implemented to facilitate the access of the e-government services by the citizens. Keramati et al. (2018) reported absence of proper business plans, unacceptable e-government expenses, policy and legal issues, change management, business process reengineering (BPR), organizational culture and resistance to change, as major organizational e-government readiness

challenges. No mention by Keramati et al. of the IT ROI reports for better e-government plans and budgets.

Osman et al. (2014) acknowledged each stakeholder has different interests and objectives that may affect the adoption and success of e-government services. Osman et al. proposed a conceptual model to measure e-service success from the perspectives of diverse stakeholders and identified key performance indicators classified into cost, benefit, risk, and opportunity groups. Osman et al. observed that using e-services achieved the benefits of influencing user satisfaction and promoting further usage. The Osman et al. model supports the possibility of determining possible ROI to realize e-service provision and emphasized determining returns from IT investments.

Integrating ICTs into the business processes of government entails understanding the complex organizational structures of the government units (Bwalya & Mutula, 2016). Bwalya and Mutula (2016) stated e-government was a potential democracy tool that promoted inclusive governance (e-inclusion) allowing people to use ICTs to engage with government structures. E-government projects through lack of incorporating the multi-dimensional factors in designing implementation and monitoring strategies (Bwalya & Mutula, 2016), and failure is further exacerbated by the lack of individuals' cognition of e-government benefits. Bwalya and Mutula noted successful e-government implementation depended on the extent to which equilibrium was attained between supply (e-government interventions and programs) and demand (the extent to which citizens and businesses want to consume e-government services). Bwalya and Mutula

emphasized a synergetic fit between IT planning and budgeting focusing on both the demand and supply side of e-government services.

E-government projects fail because of cultural, economic, political, and judiciary corruption distorting information processing capabilities of administrative systems (Aladwani, 2016). Aladwani (2016) emphasized decision makers viewed corruption as a major obstacle that hinders e-government projects from demonstrating potential values. To counteract the negative influences of the corruption forces, Aladwani recommended decision makers needed to design and implement appropriate programs that promote good governance standards. Poorly planned and managed cultural, economic, political, and corruption pose a negative impact on e-government projects implementation.

Governments should understand their business environment to deploy relevant e-government services (Reddick & Roy, 2013). Reddick and Roy argued there was a relationship between a positive perception of government by business and the use of e-government. Reddick and Roy (2013) explored the experiences of businesses and e-government satisfaction in the process addressing the aspect of IT ROI. Jukić, Vintar, and Benčina (2013) studied the issue of ex-ante evaluation of e-government projects, stating there was still little information about the impact of evaluations on the success rate of e-government projects and finding the ex-ante evaluation of e-government projects affected the success of projects, with 28% of the variance under the success areas. Jukić et al. identified the costs of planning as a key parameter to consider during the ex-ante evaluation of e-government projects.

Jukić et al. (2013) revealed the importance of funding the planning phase during the implementation of e-government projects and recommended further research affecting the implementation of e-government projects, including effective management structures, accountability for results, and strong change management, among others. Jukić et al. emphasized sharing the IT ROI reports to enhance accountability of the IT investments and using the reports during planning and budgeting.

Patanakul (2014) found managing large IT/IS projects was challenging to project managers in public sector institutions as many stakeholders and management of many relationships could lead to poor project performance. In the background, it was observed poor performance of IT projects in public sector institutions were in line with Patanakul, who emphasized that success in managing large-scale projects requires a great deal of coordination and collaboration done through established processes, strong teams, and involvement of stakeholders. Chang (2017) recommended avoiding self-interested resource competition among individual project managers resource monitoring among project managers could serve as an effective management mechanism for effective resource conflict resolution within a program.

Pérez-Méndez and Machado-Cabezas (2015) studied the answers to three questions: (a) Do companies that rate their IS highly improve their performance? (b) How does IS quality and strategy affect results? and (c) Is there a positive relationship between the use of new management tools (NMTs) and improvement in performance? Pérez-Méndez and Machado-Cabezas found a positive effect of the IS quality and strategy on

the corporate profitability improvement. Pérez-Méndez and Machado-Cabezas stated logistic regression shows an interaction between the use of NMTs and the IS strategic approach to improving profitability and suggested investment in new IS and NMTs get support with a clear organizational business strategy.

Pérez-Méndez and Machado-Cabezas (2015) emphasized the need for periodic IS ROI assessments to establish the relationship between the IS and organizational performance. To this end, I also investigated what managers generally used to leverage IT ROI reports to improve planning, budgeting, and implementation. Moon et al. (2014) analyzed 248 IT/e-government articles published in six major public administration journals from 1965 to 2010, examining IT/e-government research trends of themes and methods. Moon et al. emphasized maximization the utility of IT for the creation, storage, manipulation, and transmission of information in public organizations as well as the strategic use of IT for effective information management through strategic planning.

Moon et al. (2014) also concluded that IT/e-government studies continue to evolve from relatively simple IT/e-government applications for internal processes to the provision of public services to citizens and businesses. Moon et al. found e-government was changing to mobile government (m-government) and ubiquitous government (u-government). Moon et al. recommended further studies on m-government and ubiquitous government and stressed that IT investment assessments for business value a prerequisite that should incorporate careful IT planning, budgeting, and implementation processes for both m-government and u-government.

The articles in this section led to finding major factors affecting e-government implementation, including the Moon et al. (2014) emphasis on the importance of information sharing, allocation of sufficient financial resources, and the need for periodic evaluations for effective and efficient e-government implementation. Moon et al. also stated that sharing of IT ROI reports enhances accountability for IT investments and reports during planning and budgeting for e-government programs.

IT Investments

Managers of companies are increasingly recognizing the importance of the strategic IT resources (Andrade, Albuquerque, Teófilo, & Silva, 2016). Andrade et al. (2016) noted IT has become a living being within the companies and with the advances and changes in technology, companies are keeping pace to remain competitive in the increasingly computerized and demanding market. This strategy requires IT investments alignment to the business strategy and eventual integration of IT within business to be able to add value to the company operations. Alencar et al. (2013) stated IT earns and sustains competitive advantage yielding a myriad of intangible benefits in business organizations and also presented a method that facilitates the evaluation of IT investments in the public sector organizations and maximization of the appropriation of the intangible benefits by the investments in IT. Alencar et al. also underscored that of all the qualifications and experience government officials may gain over a period, investing in IT is still one of the most challenging undertakings in the public sector. Additionally, Alencar et al. indicated organizations' need to adopt an IT investment management

model with requisite assessment, comparison, and control parameters. An IT investment model needs to merge public value, strategic goals, service delivery value chain, performance indicators, continuous monitoring, constant evaluation, and asset management concepts (Alencar et al., 2013). Alencar et al. discussed IT investment issues in public sector institutions and emphasized the need for the observance of proper IT investment parameters, including continuous monitoring and constant evaluation that are key ingredients of ROI reports.

Evaluation information can be used for subsequent modification of management actions to improve ICT value through resource control and allocation, and ICT use (Ceric, 2015). Ceric (2015) conformed to Alencar et al. (2013) recommendation to adopt an IT investment management model with requisite assessment, comparison, and control parameters. Alencar et al. (2013), and Ceric (2015) concurred on the importance of IT project evaluation as a major source of data and information for efficient project management.

Measuring of IT benefits and value is considered as one of the most important issues for senior IT management (Maresova, Sobeslav, & Krejcar, 2017). Maresova et al. (2017) noted evaluation of IT effectiveness and efficiency is inadequately carried out because: (a) business executives lack the knowledge of metrics for evaluating IT, (b) business executives lack motivation to apply the metrics, (c) metrics for evaluation has too technical indicators with minimal connection to the routine business evaluation of investments, and (d) there is lack of comprehensive information for managers to make

decisions. Robogadi (2017) recommended the development of professional employee competencies through training, promotion of knowledge acquisition and skills transfer, and development of budgets for funding the development of employee competencies. Robogadi emphasized empowerment of the project staff with requisite skills for the successful implementation of projects. According to Maresova et al., in spite of the existence of metrics to evaluate the efficiency of technologies, managers rarely use the metrics due to lack of knowledge for evaluating IT. Robogadi reported staff training and professional development was the reason for the good ICT infrastructure implementation in Botswana. Robogadi recommended the development of core ICT employee training to empower policymakers, industry practitioners, and public and private sector workers with global competitive skills.

IT investments are a strategic move for many organizations to gain a competitive advantage and improve productivity, and also to boost the performance of the businesses (Chaysin, Daengdej, & Tangjitprom, 2016). As spending on IT increases, managers are increasingly demanding to know the returns from IT investment and the investment translation into dollar returns (Chaysin et al., 2016). Without proper communication, the employees involved in the change process would not know what changes were made, what changes are being made, what changes should be made (Ziemba & Oblak, 2015). Poor communication in small medium enterprises (SMEs) can lead to poor enterprise resource planning (ERP) adoption (Venkatraman & Fahd, 2016; Ziemba & Oblak, 2015). Chaysin et al. (2016), and Venkatraman and Fahd (2016) emphasized comprehensive

communication to address the issues of mindset, stakeholder participation, and information dissemination within organizations.

Implementation of a change management program in an organization fosters knowledge transfer, combats user resistance, and facilitates organization culture adaptation (Tarhini, Al-Salti, Gharaibeh, & Elyas, 2016). Altamony et al. (2016) identified change management as a major enterprise resource planning (ERP) system critical success factor. As a living being within own IT sector or other sectors of the economy, IT is subjected to continuous changes that require a good change control (Andrade et al., 2016). Andrade et al. (2016) stressed the transition between the current and the future state should be monitored without neglecting the supporting plans and change issues. Tarhini et al. (2016) and Altamony et al. emphasize monitoring, planning, and change control management as key factors for successful IT project planning, budgeting, and implementation.

Implementation of different changes, as a result of ubiquitous information systems adoption, have become a challenge for public organizations requiring dedicated change management processes (Ziemba & Oblak, 2015). Ziemba and Oblak (2015) found change management provides a solution of how to plan better for the implementation of changes, and how to overcome employee resistance to the changes. Ziemba and Oblak identified top management support: employees shared vision for change, employees training and involvement, information flow, and performance measurement as change management critical success factors. Ziemba and Oblak recommended conduction of

future research into the improvement of processes in public organizations after change management program implementation to explore best practices for managing information system projects.

For an ROI to exist, organizations must first invest in the installation and support of an ERP system, and balance IT investments and levels of customization (Ram, Corkindale, & Wu, 2015). Development of project staff skills rather than outsourcing kills and ensuring efficient data collection processes is important for the realization of returns from the IT investments (Madapusi & Ortiz, 2014). Madapusi and Ortiz (2014) concluded firms benefit by deploying modules pertinent to intra-firm systems that fine tune staff technical competency over time.

There are different levels of information technology portfolio management (ITPM) uses in relation to IT investment planning, control, and evaluation (Cunha Dolci, Carlos Gastaud Maçada, & Grant, 2014). Cunha Dolci et al. (2014) noted ITPM was frequently used in IT investment planning with little attention to IT research in IT investment planning, control, and evaluation. Cunha Dolci et al. recommended more research in IT investment planning, control, and evaluation.

Information and communications technology (ICT) capacity of a nation increases with a high ICT index (Andoh-Baidoo, Osatuyi, & Kunene, 2014). Andoh-Baidoo et al. (2014) noted unlike ICT adoption and diffusion that focuses on the use of ICT, ICT capacity measures public, and private investments in ICT and the use of ICT. ICT investment by the private sector, depends mainly on human development factors and not

the perceptions of corruption about a nation (Andoh-Baidoo et al., 2014). Andoh-Baidoo et al. underscored ICT investments enhance transparency and accountability in organizations. Andoh-Baidoo et al. concluded the right mix of investments in ICT, health, and education is important for the developing nations' economic and social transformation.

While previous researchers have explored aligning IS functionality with strategic intent, less research exists regarding successful implementation of strategic changes with system use (Arvidsson, Holmström, & Lyytinen, 2014). Arvidsson et al. (2014) noted IT investments matter only when IT capabilities are embedded in new organizational practices through an integrated planning approach. Arvidsson et al. emphasized organizations need to identify relevant processes where IT integration is implemented for efficient and effective performance.

Internal IT resources, external IT consultants, supplier relations, and customer relations are the factors affecting IT adoption in small businesses (Nguyen, Newby & Macaulay, 2015). Nguyen et al. (2015) noted during the adoption of IT by small businesses, customers are the main driving force. Nguyen et al. concluded IT adoption can be highly beneficial if the managers ensure IT investment integration into the business strategies.

Despite the institutions adhering to the underlying factors of IT alignments to operations practices, the IS failure rate remains high (Dwivedi et al., 2015). Dwivedi et al. (2015) emphasize the need to study IS failure problems venturing into underexplored

organizational contexts. Dwivedi et al. recommended more longitudinal studies to document processes of misalignments between IT projects and institutional practices.

Under the IT investments section of this literature review, I present many articles that reveal the necessity for observing proper IT investment parameters such as continuous monitoring and constant evaluation as the key ingredients of ROI reports. In addition, I present articles that emphasize good quality information for improved efficiency, better decision-making, and enhanced coordination. Most authors underscore IT ROI data as an enabler for the managers to make IT investment decisions.

The reviewed articles reveal the need for continuous IT investments value assessments, sharing of assessment reports, and availing the reports to the teams charged with the planning, budgeting, and implementation of IT projects. I found no articles on the specific topic of this study, although I did find information on IT ROI performance assessment, IT planning and budgeting, e-government services, and IT investments.

Transition and Summary

In section 1, I discussed the study background on the potential for inherently improper planning, budgeting, and implementation of IT projects in public sector institutions. In addition, I presented the problem and purpose statements, research question, conceptual framework, and defined the terms used in the study. In section 1, I also included statements on the study assumptions, limitations and delimitations, discussion of the significance of the study, and documented the review of the professional and academic literature.

In section 2, I present my roles as a researcher and the nature and selection criterion for participants. I also presented the research method and design, population and sampling, adherence to ethical research, data collection, and analysis techniques for the study. In the last part of section 2, I discuss study reliability and validity.

In section 3, I provide a detailed description of the application to professional practice of my study findings and implications for change. The areas include the overview of the study, presentation of the findings, applications to professional practice, implications for social change, recommendations for action, recommendations for further study, reflections, summary, and conclusions.

Section 2: The Project

Section 2 includes the purpose of the study, the role of the researcher, participants, research method and design, population and sampling, ethical research, data collection, data analysis, and reliability and validity sub-sections. In addition, Section 2 includes a description of the exploration and interpretation of the business problems of improper planning, budgeting, and implementation of IT projects in Ugandan public sector institutions.

Purpose Statement

The purpose of this qualitative single-case study was to explore the strategies Ugandan senior public sector officials use to leverage IT ROI reports during planning, budgeting, and implementation of IT projects to reduce failure rates. I collected data from participants in a single public sector organization in Uganda because of successfully leveraging IT ROI reports during planning, budgeting, and implementation of IT projects to reduce failure rates. The implications for positive social change of this study include increased accessibility of e-government services by citizens and other stakeholders, increased citizen online participation in policy formulation, planning, monitoring and evaluation, governance, and promotion of transparent and open government.

Role of the Researcher

Collins and Cooper (2014) asserted through all stages of qualitative research projects, the researcher has been the main instrument for analysis. In this single case study design, I was the main instrument for developing the research topic, developing the

research question and interview questions, selecting the population and key participants, seeking permission from the selected institution, and seeking clearance from the Walden University Institutional Review Board (IRB) with the approval number 03-07-18-0334991. In addition, I collaborated and conducted face-to-face interviews with the participants, collected and analyzed the data, and reported the study findings.

Because communication is essential in the instructor-student relationship (Obermiller, Ruppert, & Atwood, 2012), I ensured constant communication with my doctoral study committee chair throughout data collection. My last role was to disseminate the study report through presentations to the university research committee, at workshops, conferences, and where possible, I will publish part of the report findings in international journals. I also determined that knowledge-sharing was an important aspect of knowledge management that contributes to enhancing organizational learning for facing competition (Abu-Shanab, Knight, & Haddad, 2014).

I have 20 years of professional experience and expertise in IT, M&E, MIS, and e-government. I have worked with public and private sector institutions on policy formulation, strategy and master plan formulation, implementation, and monitoring and evaluation of IT, MIS, and e-government projects and programs. I have also participated in the formulation of a sector and institutional strategic investment plans with requisite M&E frameworks and systems.

I protected the participants in the study by ensuring nondisclosure of their personal information and coding their responses to questions. I also adhered to the United

States Department of Health & Human Services (1979) Belmont Report protocol of ethical principles of respect of persons, beneficence, and justice. During the interviews, I judiciously observed the anonymity of participants and gave them adequate time to provide responses.

During data collection and analysis, I ensured adherence to the ethics and integrity required of a professional researcher by avoiding personal bias and influence on the data and distortion of the analysis results. I also respected not declaring personal areas of interests and conflict, my professional background, and any biases that might affect the research (Hastings, 2010). I comprehensively collected data from respondents and subjected them to a professional analysis process to generate key findings and recommendations. Researchers may exclude certain results when submitting an article to a journal, or reviewers and editors may ask the authors to remove specific results during the editorial review process (Kepes, Banks, & Oh, 2014). My personal views were secondary and minimized as much as possible so as not to affect the results of the study.

Defining a research problem is the most important step for a research project (Baškarada, 2014). To ensure that was done correctly,

1. I designed an interview protocol that aligned with the study problem.
2. The questions in the interview protocol pertained to strategies surrounding the success story of leveraging IT ROI reports during planning, budgeting, and implementation of IT projects by the organization to reduce failure rates.

3. I also endeavored to explain to the participants the rationale behind my interview protocol questions.

Yancey, Ortega, and Kumanyika (2006) asserted communication was key to increasing prospective participants' perceptions of my goals and motivation. During the interviews, I consistently used the interview protocol as a guide to avoid missing or skipping any important step.

Participants

Lilja et al. (2011) described a knowledgeable participant as (a) at the top of her or his field of technical or scientific knowledge, (b) interested in a wide range of knowledge, (c) able to see connections between national and international, present and future development, (d) able to disregard traditional viewpoints on all angles, and (e) interested in creating something new. The participants held either a top management position, headed a planning unit, were a chairperson or member of the planning and budgeting committee, headed a finance and accounts division, headed an IT unit, headed a budgeting unit, headed a monitoring and evaluation unit, or were in the senior principal level position in the organization.

The participants all had 15 years working in a public sector setting with at least a master's degree in their fields, including public administration, economic development, information technology, law, finance, accounting, social sciences, and business administration education specializations. Specifically, the 10 participants were from a single public sector organization in Uganda selected because of their ability to

successfully leverage IT ROI reports during planning, budgeting, and implementation of IT projects. An investigator may increase his or her prospects of data collection success through demonstrating both implicitly and explicitly the value of the contributions that informants might make to the study (Shenton & Hayter, 2004). In Appendix A, I stated the departments, divisions, and units where the study participants work to assert their relevancy as participants in the study. In so doing, I clearly demonstrated the quality of the contributions expected from the participants.

A fundamental task for undertaking fieldwork for a qualitative research study lies in gaining access for both securing entry into a specific organization and ensuring individuals associated with the organization, such as employees or users. To gain research access to an organization, the key informants need not be known by the researcher. Establishing a working relationship with participants requires engaging participants to share their experiences (MacDonald, 2013). In the first contact meeting with potential participants, I introduced myself and told them about my research study, its purpose, the permission granted for conducting it, and the procedures for their taking part in it. Pederson (2013) found a working relationship established through personal interviews yields greater willingness to share experiences meaningfully in data collection. At the end of first contact meeting, I secured the participants' telephone, email, and Skype contact information to enable developing good communication channels with them.

Research Method

I used a qualitative research method for this study. Tong, Winkelmayr, and Craig (2014) stated researchers use qualitative research methods to elicit in-depth and detailed insights into people's attitudes, beliefs, emotions, and experiences. Qualitative research methodology was appropriate because, according to Patton (2015), qualitative methodology provides a vehicle for developing insights into the contexts of how and why a phenomenon occurs. Qualitative research enabled me to explore the strategies senior officials of the organization use to leverage IT ROI reports during planning, budgeting, and implementation of IT projects to reduce failure rates.

I did not use a quantitative research methodology because, according to Bernad (2013), quantitative research requires the collection of numerical data. Yilmaz (2013) stated that quantitative researchers use numerical data to test hypotheses, measure results, and analyze data in order to generalize results, which was not the purpose of this study. Fakis, Hilliam, Stoneley, and Townsend (2014) stated the quantitative research method involves statistical and numerical data. My study type of responses and observations did not lend themselves to consistent measurement and statistical analysis. Venkatesh, Brown, and Bala (2013) stated mixed methods research requires both quantitative and qualitative methods within a single research inquiry. I did not use mixed methods because my study required only the qualitative method.

Research Design

I used a single-case study design, which, according to Yin (2014), is an empirical inquiry that is used to investigate a contemporary phenomenon (the case) in depth and

within its real-life, especially when the boundaries between phenomenon and context are not clearly evident. According to Yin (2014), the case study method is particularly appropriate when the research question starts with “How?” or “Why?” A research question starting with “What?” is also accurate, especially for a relativist/subjective approach. The single-case study design enabled an in-depth focus on the context of the research within the boundary of the public sector institutions. The case study design enabled me to understand the strategies senior public sector officials use to leverage IT ROI reports during planning, budgeting, and implementation to reduce failure rates of IT projects in public sector institutions.

Arghode (2012) described phenomenological design as a method for permitting researchers to understand the unique lived participants’ experiences, but that was not the focus of this study. Ethnography entails exploring common patterns of conduct, philosophies, and language within a cultural group through observation (Schultz, 2012), but this study was also not suited to this method. A survey approach was also not appropriate for the study, as they are mostly used for describing a population too large to observe (practices and or behaviors) directly or for measuring attitudes (Sinkowitz-Cochran, 2013).

In the research design, I was mindful of data saturation. In interviews, when the researcher begins to hear the same comments again and again, data saturation is being reached. It is then time to stop collecting information and to start analyzing what has been collected (Fuschs & Ness, 2015; Latham, 2014; Myer & Ward, 2014; Suri, 2011). The

more precise a question, the quicker it tends to reach data saturation (Suri, 2011). I collected responses until no new ideas emerged from the 10 participants.

Population and Sampling

Marshall and Rossman (2011) suggested a number between seven and 10 participants for qualitative case studies is sufficient. The potential population consisted of 40 members of the management team of the organization, and I purposefully selected 10 information-rich participants from that group. Marshall et al. (2013) noted sample size depends on the purpose of the inquiry, what will have credibility, and what is doable with available time and resources. The target population was the organization's top managers, members of the planning committee, IT users, IT staff, finance and accounting staffs, and planning unit staffs. Informed decisions when selecting participants are critical to improving the quality of research synthesis (Suri, 2011).

Purposeful sampling is a tool to identify significant participants with experience with the research topic (Taplay, Jack, Baxter, Eva, & Lynn, 2014). Taplay et al. (2014) noted determining the proper sampling in a qualitative study was critical because the objective was to select interview participants not to count or record the number of opinions. Robinson (2014) contented the knowledge of the population from the perspective of the researcher helps in defining the right sample. The researcher must ensure that the sample is from the correct community in which the study originates (Taplay et al., 2014). Padgett (2016) stated purposeful sampling was a tool to identify participants whose knowledge would yield consistency of emerging themes.

I engaged 10 information-rich senior public sector officials as study participants. Marshall et al. (2013) recommended (a) grounded theory qualitative studies should include between 20 and 30 interviews, and (b) single case studies should contain between 15 to 30 interviews. Sandelowski (1995) stated determining adequate sample size in qualitative research is ultimately a matter of judgment and experience in evaluating quality information usage.

Ethical Research

Holian and Coghlan (2013) emphasized ethical issues for academic supervisors, institutional review boards, and human research ethics committees. After securing clearance from Walden University IRB reference number 03-07-18-0334991 to commence data collection, I immediately communicated to each of the selected participants by email and also follow up by telephone and Skype wherever possible. Holian and Coghlan underscored ethical issues associated with choices on alternative options and the expected effects and outcomes on the researcher, participants, organization, and stakeholders. Researchers are guided by the bioethical principles of justice, beneficence, non-maleficence, respect for human rights, and respect for autonomy throughout the research process (Haahr, Norlyk, & Hall, 2014). In the initial communication and conversation, I explained to participants the intent of the study, discussing the background, problem statement, purpose, nature of the study, and research questions. Communication is a vital part of any successful organization or effective relationship (Epler, 2014).

Cook and Hoas (2011) emphasized respondents want understandable and relevant information regarding what is required and what the pros and cons of participating in the research entail. Informed consent requires that individuals receive adequate information on written consent forms to be able to make informed decisions to participate in research (McKee, Schlehofer, & Thew, 2013). The information in the interview guide protocol enables participants to understand their rights and ensures the researcher conducts research in an ethical manner (Jacob & Furgerson, 2012). All agreement documents formulated during the study were mentioned in the text of this study and listed in the table of contents and Appendices A, B, and C.

I briefed the participants about their freedom to withdraw from the study at any time. If any participant decided not to take part or omit some of the questions, he/she would be free to do so, and the action would not affect the current or future relationship with the researcher. Under the voluntary nature of participating in the study, at any particular moment, procedurally if one wants to withdraw from the study, he or she was asked to send an email to me to communicate that withdrawal as one of the procedures stated in the consent form.

After participants reached an understanding of the study, I sent an official participation request by email to each and attached a consent form for them to complete, sign, and return to me. The consent form stipulated that participation in the research was voluntary with no monetary incentives but that they would be informed of the findings

and recommendations of the study. Because of the voluntary nature of the study, participants would not have any payment or other form of incentive for participation.

Maintaining the confidentiality and anonymity of research participants and research data are essential to ethical and valid research (Stiles & Petrila, 2011). To protect the confidentiality of participants, I will maintain all data by storing paper documents in a locked file cabinet and electronic copies in password-protected folders on a flash drive for a period of 5 years. After 5 years, I will destroy all information by shredding the paper documents and use data destruction software to destroy all electronic file folders on the flash drive.

Commitments to community interests in the context of research are as foundational as research ethics commitments are to individual participants (Quinn, Kass, & Thomas, 2013). Any personal information, including names provided at the beginning and during the interviews, was kept confidential by using codes. To ensure candid responses and avoid associating any person with the results, anonymity of participants' responses was preserved (Giannarakis et al., 2011).

Data Collection Instruments

As I was the primary instrument for the study, I collected data using in-depth face-to-face interviews. Face-to-face interviews are a means of collecting qualitative data that allows a researcher to get first-hand information directly from informants (Zohrabi, 2013). Using in-depth face-to-face interviews, I collected textural data in the form of experiences on the main research question, what strategies do Ugandan senior public

sector officials use to leverage IT ROI reports to reduce IT projects failure rates?

Yaghmaei and Brem (2016) stated semi-structured interviews offer the added advantage of having lines of inquiry of an interviewer simultaneously asking controversial questions in a focused, or in-depth manner. Marshall, Brereton, and Kitchenham (2015) emphasized semi-structured interviews are suitable for collecting qualitative data and that unlike self-administered questionnaires, semi-structured interviews provide the opportunity for additional discussion or exploration of new topics.

Interviews

I used an open-ended interview protocol to collect data. An interview protocol is more than a list of interview questions; it also extends to the procedural level of interviewing, including a script of what the researcher said before the interview, script for what the researcher said at the conclusion of the interview, prompts for the interviewer to collect informed consent, and prompts to remind the interviewer the information that she or he was interested in collecting (Jacob & Furgerson, 2012). The interview protocol written document included a heading, standard instructions to follow, open-ended questions, and a final statement to thank the participant for his or her time. The interview protocol with the open-ended interview questions focusing on various aspects of the main research question is in Appendix B. Jacob and Furgerson (2012) noted interview protocols become a set of questions and a procedural guide for directing a new qualitative researcher through the interview process.

Document Review

In addition to the face-to-face interviews, I collected secondary data by reviewing the organization's policy statements, work plans, and performance reports, a process that is noninvasive (Yin, 2013). I used a document review protocol to document the secondary data from the document review for each interview question. Petty et al. (2012) stated that during case studies, researchers often collect secondary data from company documentation to deepen their understanding of the case. Documents are a valuable resource for augmenting and corroborating evidence from other sources (Yin, 2014).

To enforce reliability and validity enhancement of the data-collection instrument, I organized a standard briefing on the interview protocol questions for all participants, a procedure that enhanced reliability of the data collection. Pritchard and Whiting (2012) emphasized dealing with unclear and ambiguous questions before data collection strengthens the credibility and dependability of a research study. Enforcement of validity of the instrument was through member checking, sharing my notes regarding my understanding of participants' meanings to remove any ambiguities and add needed clarifications.

Interviewers need to gain the trust of their respondents to collect high-quality data (Harvey, 2011). Member checking is presenting responses to the interview questions to allow participants to check interpretation of the data for accuracy (Marshall & Rossman, 2016). I allowed the participants an opportunity to review the transcripts individually after the data analysis. Erlingsson and Brysiewicz (2013) underscored the need to ensure member checking by participants themselves judging the trustworthiness of the study and

to confirm the authenticity of the study conclusions. I conducted both transcript review and member checking to ensure accuracy and enhance reliability and validity of the transcript data and documentation. Andraski et al. (2014) stated reliability and validity of data could be enhanced using member checking, and Houghton et al. (2013) noted checking for the proper meaning of data was vital to affirming its validity.

Using member checking, I confirmed the accuracy of responses. Cope (2014) suggested to enhance research credibility and trustworthiness, the researcher needs to communicate a summary of the themes that emerged and request feedback or member checking at the completion of data analysis. After I prepared the first draft of the data analysis report, I set up shorter follow-up interviews with participants to seek clarification and further information where I may have missed some of their responses. Jacob and Furgerson (2012) emphasized the need to set up a second shorter interview to help clarify or ask any questions missed after transcription of the first interview to clear up what was not understood. I set up a second shorter interview to clarify or ask questions I might have missed after I transcribed the first interview and allowed each participant to review the results after the response and document review data analysis phase in a focus group discussion.

Data Collection Technique

In accordance with ethical research standards advocated by Check et al. (2014), I had no contact with potential participants until IRB approval. After that approval, I began

the data collection process. Yin (2014) stated qualitative researchers collect data through transcribed interviews. I used both interviews and document reviews to collect data.

Interviews

I used an open-ended interview protocol to collect the study data. Jacob and Furgerson (2012) emphasized interview protocols become not only a set of questions but can also become a procedural guide for directing a new qualitative researcher through the interview process. I exclusively and systematically interviewed the participants strictly following the stipulations of the interview protocol. Questions in an interview protocol can be open-ended to allow a variety of responses, reducing the risk of bias relating to the researcher's preconceptions and allowing the use of elaboration probes to encourage the participant to keep talking about the research topic (Marshall et al., 2015). I captured the response statements from the participants using both audiotaping and notetaking approaches. Wherever a need arose, I probed the participants with further follow-up questions for further clarifications of their responses.

Yin (2014) stated the advantage of using interviews is that participants may orally express knowledge, understanding, and expertise in the presence of an interviewer. Interviews enabled me to interact with participants and allow for probing and seeking further clarification about their responses. Interviews characterize human involvement and eliminate doubt about the authenticity of the data (Doody & Noonan, 2013).

Disadvantages of interviews are if participants have poor articulation of responses or poor recall (Yin, 2014). In cases where participants fail to articulate the issues well, the

responses may be incomplete. Doody and Noonan (2013) stated other disadvantages associated with interview data collection is time and costs arising from expending additional time and energy for travel and transcribing new responses.

Document Review

In addition to the face-to-face interviews, I went to the organization to retrieve approved policy statements, work plans, and performance reports. Collecting data via document review is noninvasive (Yin, 2013). Yin (2014) underscored advantages and disadvantages of using various types of data collection. Irvine, Drew, and Sainsbury (2013) stated because of the importance of personal contact in qualitative interviews, semi-structured interviews typically are conducted face-to-face. The advantage of using interviews was to provide comprehensive study data and information despite the disadvantage of its being labor intensive and time-consuming. Using a recording device and taking brief notes can also maintain eye contact with an interviewee (Jacob & Furgerson, 2012).

Data Organization Techniques

Organizing data throughout a research study is necessary for gaining insights into data that may appear prior to data analysis (Edwards & Holland, 2013). I used password-protected electronic folders to keep track of the data and kept track of the interview data on audio tapes and a notebook. For the data collected through document reviews, I captured the data on a collection by aligning it with the different questions in the interview protocol.

Franzosi et al. (2013) stated NVivo data analysis software supports qualitative researchers by assisting them to gather, organize and explore content from interviews, document review, and field notes into codes and themes. Using the NVivo 12 software, I coded names of participants to differentiate the responses of each question in the interview protocol. The coding ranged from code 001 to 010. The resultant database enabled detailed analysis of the different emerging data themes.

Interviewer's reflective notes are vital reference documents for data interpretation (Gale, Heath, Cameron, Rashid, & Redwood, 2013). I documented and kept notes on any preconceptions that may have influenced the results. Security controls should protect information-related resources from a myriad of threats, such as unauthorized access or modification, disclosure, destruction, and repudiation (Soares & de Sá-Soares, 2014). I keep the physical document copies in a lockable file cabinet and created a master electronic file folder with a secure password to archive the data for at least 5 years.

Data Analysis

Data analysis includes checking for the similarities between participant statements and the conceptual framework used in the research for meaningful analysis (Yin, 2014). The face-to-face interviews and review of the organization's policy statements, work plans, and performance reports ensured adherence to the triangulation concept to enhance the reliability of the study results. Guion et al. (2011a) stated triangulation is a method used by qualitative researchers to check and establish validity in their studies by analyzing a research question from multiple perspectives. I used the methodological data

triangulation technique to review the data collected from the face-to-face interviews and review of organization's documents.

Fusch and Ness (2015) indicated triangulation includes data, the investigator, theory, and methodological types. I used the methodological data triangulation technique to review the data collected from the personal interviews and reviews of the organization documents. Eriksson (2013) stated data triangulation is common in qualitative case studies for a holistic review of the data collected from multiple sources. I used the within-method triangulation to cross check the internal consistency of data collected from two sources. Hussein (2015) stated the within-method type of triangulation implies multiple complementary methods used in data collection and analysis. Heale and Forbes (2013) stressed triangulation promotes a more comprehensive understanding of the phenomenon under study and enhances the rigor of a research study.

Researchers can analyze case studies using any of the five strategies: pattern matching, explanation building, time-series analysis, logic models, and cross-case synthesis (Yin, 2014). I logically and sequentially used the data analysis strategy of pattern matching for the themes. The data analysis process initially began by my sorting the audiotapes and notes for each participant during the interviews to ensure proper organization of the responses. Yin (2014) stated data analysis process involves five stages: compiling, disassembling, reassembling, interpreting, and concluding.

Compiling

For the data collected through document review, I created a form to compile findings according to the different questions in the interview protocol. After the compilation, I entered the data into the NVivo 12 software as another source of data from the review of documents.

Disassembling

After compilation, I disassembled the data, another formal procedure for coding data (Yin, 2011). After that, I coded the data according to the themes generated for each of the questions, reassembled, and interpreted the data for comparison with the responses from the participant interviews.

Coding is the process of tagging segmented data with category names or descriptive words and then grouping the data (Wilson, 2012). Coding differentiated response data from the 10 participants covering each of the questions in the interview protocol specified in Appendix B. Coding of data is essential in identifying patterns and themes (Smit, 2012).

The coding ranged from 001 to 010. Each code represented a participant with his or her responses to the interview questions. The resultant database containing the coded items created using the NVivo 12 software enabled detailed analysis of the emerging data scenarios. I used the auto-coding feature in NVivo 12 to identify similarities in data and prevalent themes to seek consistencies or lack thereof among the perspectives of participants.

Reassembling

After disassembling, data is reassembled in several arrangements until themes emerge (Yin, 2011). I reassembled the data until specific themes and patterns manifested. Successful reassembling is evident if themes emerge for analysis (Yin, 2011).

Interpreting

After reassembling, data is interpreted to seek a sense of the data (Turner, 2010). I interpreted the data to get the study findings. The researcher's ability to understand and describe the data is critical during data interpreting (Carcary, 2011).

Concluding

I finally concluded from the data analysis interpretations. Conclusions are a sequence of statements arising from study findings of a larger set of ideas (Buchanan, 2013). The conclusions focused on the study findings on the strategies used to leverage IT ROI reports during planning, budgeting, and implementation of IT projects in the organization.

Castleberry (2014) stated NVivo 12 offers an easy-to-use format to help researchers' sort, organize, and classify data until answers to questions appear. The NVivo 12 software facilitated the processes of identifying various themes, patterns, and descriptions to answer the research question. Responses to each interview question were analyzed to identify the strategies used to leverage IT ROI reports during planning, budgeting, and implementation in the organization. I imported the Microsoft Word textual transcripts from the audio tapes into the NVivo 12 software to compile the data from participants' responses.

Data processing using NVivo included integration of the data analysis results according to the questions in the interview protocol I also used the NVivo package to integrate the reflections and notes from the document review. Yin (2014) stated the need to check for similarities among participants' views and to determine a conceptual framework for meaningful analysis. I used the two frameworks to provide explanations for the strategies the organization uses to leverage IT ROI reports during planning, budgeting, and implementation of IT projects to reduce failure rates.

Reliability and Validity

Reliability and validity principles are more pronounced in quantitative than in qualitative studies. In case studies, collecting multiple sources of data are important to ensuring reliability (Yin, 2012). The data sources were face-to-face interviews and the review of organization policy documents. The choice of supporting information for the topic of research is a significant indicator of reliability in qualitative research (Bernard, 2011).

Dependability

To ensure data accuracy to achieve dependability, I debriefed the selected participants of the intent of the study for awareness creation and internalization before I began data collection. Munn et al. (2014) underscored dependability established whether the research process is logical, traceable, and clearly documented. To further promote reliable responses during debriefing, I encouraged participants to suggest any amendments to the questions before the interviews.

I preserved the confidentiality of the participants' responses and avoided open debates to ensure dependable responses. On completion of the interview transcriptions, I shared them with participants for them to check and ensure full capture of their responses. To ensure dependability through member checking, I also allowed participants to review the data analysis results.

Credibility

Credibility is the confidence in how well the data addressed the intended focus (Polit & Beck, 2012). Member checking is another way to determine the credibility of the interpretation (Houghton et al., 2013). To maintain credibility, I ensured proper data capture, storage, transcription, and writing of the report arising from the different sources of data, including interviews and the review of government reports. During the member checking process, the researcher follows up with the participants until data saturation (Bernard, 2013). Guest, Bunce, and Johnson (2006) described data saturation as the point at which no new information or themes observed in the data. Achieving data saturation means the researcher has asked probing questions and followed up with the respondent until no new themes emerge validating the sample size (Fusch & Ness, 2015).

Confirmability

Confirmability refers to the researcher's ability to demonstrate that the data represent participants' responses and not the researcher's biases or viewpoints (Cope, 2014). For confirmability, I clearly described how I would reach the conclusions and interpretations by emphasizing the findings derived directly from the data. I requested my

chair and committee members to examine and evaluate the interview audit trail for comprehensiveness regarding adequacy, accuracy, and processes to enable me to capture all aspects of the study. Confirmability of findings means data accurately representing the information participants provide along with interpretations of data not created and embellished by the inquirer (Polit & Beck, 2012).

To further address confirmability, I conducted a short follow-up face-to-face interview using the same interview questions with two senior and experienced staff in other government institutions not participating in the study. I also interviewed two senior researchers from Makerere University Kampala, College of Computing and Information Sciences. Erlingsson and Brysiewicz (2013) emphasized peer scrutiny to minimize inconsistencies and achieve clear and logical documentation.

After the follow-up interviews, I used the responses to compare areas of agreement as well as divergent views and perspectives with those raised by the selected study participants. Reflexivity adds to confirmability of qualitative research results applied when the researcher documents his or her research role and acknowledges personal assumptions, biases, and reactions that might possibly influence data collection and interpretation (Watkins, 2012).

Transferability

Transferability of research results was a key element I considered during the study. Houghton et al. (2013) emphasized presentation of the study findings to potential readers to enhance applicability in different contexts. I provided a detailed description of

the study objective and the findings to enable participants, researchers, and readers to apply any recommendations in their work. Kemparaj and Chavan (2013) described transferability as the potential for extrapolation of study results. I strived to document the findings in such way that the participants, researchers, and readers might adopt the recommendations for their usage.

Cope (2014) stated researchers should provide sufficient information on the informants and the research context to enable a reader to assess the capability of the finding as being fit or transferable. I provided a clear description to enable comparisons to different social contexts. Taylor and Medina (2013) stated qualitative research trustworthiness criteria for transferability poses a question of whether there is sufficient rich description for the reader to compare his or her own social context with the social setting of the research.

Transition and Summary

In this section, I articulated my role as a researcher, described the participants, and provided selection criterion for participants in the study. In section 2, I presented an overview of the research method and design, population and sampling, ethical research, and the data collection and analysis technique for the study. In the last part of section 2, I discussed the study reliability and validity.

In section 3, I present a detailed description of how my findings apply to professional practice and the implications for change. Section 3 contains a discussion on the overview of the study, presentation of the findings, applications to professional

practice, implications for social change, recommendations for action, recommendations for further study, reflections, and summary and study conclusions. I will conclude the section with a final summary of key study outcomes.

Section 3: Application to Professional Practice and Implications for Change

Introduction

The purpose of this qualitative single-case study was to explore the strategies Ugandan senior public sector officials use to leverage IT ROI reports during planning, budgeting, and implementation of IT projects to reduce failure rates. I collected data from 10 senior managers from the organization using face-to-face interviews and reviews of approved company documents. The participants provided the strategies they used to leverage IT ROI reports during planning, budgeting, and implementation of IT projects to reduce failure rates. I used NVivo 12 software to identify similarities in data and seven common themes: (a) involve senior managers in IT ROI reporting; (b) use previous IT performance assessment reports during planning, budgeting, and implementation; (c) empower project teams to undertake IT ROI assessment; (d) ensure completeness of IT ROI reports; (e) ensure comprehensive M&E indicators for IT projects; (f) ensure availability of periodic IT ROI reports; and (g) implement a change management program.

Presentation of the Findings

One research question guided this study: What strategies do Ugandan senior public sector officials use to leverage IT ROI reports to reduce IT project failure rates? I used in-depth face-to-face interviews to collect textual data of experiences and methodological data triangulation to analyze the data collected from interviews and approved organization's policy statements, work plans, and performance reports. The

participants were 10 senior public sector officials from the organization in Uganda. I coded the participants from 001 to 010 to differentiate response data from the 10 participants covering each of the interview questions. I used an open-ended interview protocol with seven sub-questions to collect study data through face-to-face interviews. I captured the interview responses from the participants using audiotaping and note taking. Throughout the data analysis process, I remained open to new insights raised by participants. Using face-to-face interviews and review of documents enabled me to triangulate data to strengthen the research findings and conclusions. The identified themes from the participants' responses and information from company documents supported both frameworks and literature reviewed in this study. Table 1 is a presentation of the seven main themes that emerged from the study.

Theme 1: Involve Senior Managers in IT ROI Reporting

Participants raised four perceptions in the interviews (see Table 2): (a) designing and leading IT reform projects, (b) cost benefit analysis, (c) stakeholder engagement and advocacy, and (d) project monitoring, evaluation, and reporting. Participant 002 said, "Heads of departments led the initiation and development of ICT-related projects within their respective subject matter areas of jurisdiction." All 10 participants, recognizing the roles played by senior managers during IT reform project design and implementation, confirmed Thompson et al.'s (2014) assertion that managers responsible for aligning IT investments with a firm's strategy seek to minimize technology costs while ensuring the IT infrastructure accommodates increasing utilization, new software applications, and

Table 1

Strategies for Leveraging IT ROI Reports

Major themes	Number of participants	Percentage of participants' perspectives
Theme 1: Involve senior managers in IT ROI reporting.	10	100%
Theme 2: Use previous IT performance reports during planning, budgeting, and implementation.	10	100%
Theme 3: Empower project teams to undertake IT ROI performance assessment.	10	100%
Theme 4: Ensure completeness of IT ROI reports.		
Theme 5: Ensure comprehensive M&E indicators for IT projects.	10	100%
	10	100%
Theme 6: Ensure availability of periodic IT ROI assessment reports	10	100%
Theme 7: Implement a change management program	10	100%

modifications to existing software applications. Participant 003 indicated “senior managers led or delegated authority to a specific staff to lead an IT project reform team, a requirement under the organization project management framework.” The transformation of organization processes and implementation of IT services performance management programs was emphasized in the Organization Corporate Plan (CP) 2016/2017-2019/2020. Participant 002 said, “Heads of departments played critical roles that led to successful implementation of IT reform projects in their areas of specialization.” Participant 001 said, “Identified problems and challenges provided clues to the process modernization reforms facilitated by IT solutions.” The Organization Annual Performance Report (APR) 2015/2016 listed electronic single window, data warehouse,

enterprise resource planning, and business continuity management as problematic business processes for re-engineering under the modernization program.

Table 2

Senior Managers' Involvement in IT ROI Reporting

Perceptions	Respondents
Designing and leading IT reform projects	10
Cost benefit analysis	6
Communication and advocacy	10
Project monitoring, evaluation, and reporting	10

Participant 003 stated, “During senior management meetings, we set up small think tanks that discuss project costs and expected benefits.” The Organization Quarterly Work plan (QW) 2016/2017 listed the planned spending, outputs, and inputs (quantity, description, and location) that the planning and budgeting teams used during the costs and benefits analysis. All participants stated cost benefit analyses for IT projects were carried out by the project teams as a starting point for IT ROI performance assessments. Participant 003 asserted carrying out cost benefit analyses was important, as the organization established the viability of investing in the new IT projects. The assertion by the participants conforms to the Maresova et al. (2017) affirmation measuring IT benefits and value was one of the senior IT management’s important issues to handle.

Participant 008 said, “The organization currently boasts of a culture of stakeholder engagement resulting in the implementation of pro-taxpayer modernization projects.” From the review of the Organization Annual Report for the year 2015/2016 (APR 2015/2016), it was reported that the organization had to tap into the informal sector

and help taxpayers meet their obligations timely and conveniently. An e-service payment method known as MTN mobile payment was implemented. The MTN mobile payment system was convenient and accessible online via the website of the organization. The Organization Corporate Plan 2016/2017-2019/2020 provided for a section that captured clients' aspirations.

Participants 001, 002, and 005 acknowledged the importance of the stakeholder engagement role played by senior managers. In conformity with Participants 001, 002, and 005, Alqaisi (2018) recognized management of stakeholder needs and expectations contributed to the creation of a suitable environment for project success. Reviewing and analyzing the Organization APR 2015/2016, it was reported, "The organization held 26 stakeholder engagements with service providers including welfare, financial, IT, and administration." Participant 002 emphasized the organization was a client-centered organization that called for constant engagement of stakeholders at project design and rollout phases. All participants acknowledged that valuing clients helped the organization to identify the problems and challenges that affected service delivery. The organization senior managers seeking stakeholders' views conformed to West's (2017) finding that leaders serve as key actors in the IT project network communication, which is essential for implementing strategies for IT project completion and cost savings.

Participant 005 affirmed, "Project monitoring, evaluation, and reporting were spearheaded by heads of departments." In reviewing and analyzing the Organization Annual Performance Report for the year 2015/2016 (APR 2015/2016), it was noted, "The

medium-term strategy was to ensure taxpayer compliance measured by the client register expansion, filing ratios (extent to which taxpayers filed returns against organization's target), amount collected from audits, as well as the proportion of collectable arrears recovered." In addition, the Organization Corporate Plan 2016/2017 – 2019/2020 had a clearly elaborated M&E results framework that emphasized continuous assessment of planned activities, outputs, and outcomes confirmed Maalim and Kisimbii's (2017) assertion monitoring and evaluation are vital components of project success, as they implied overseeing the process of implementation and at the same time judging the worth of the project.

Participant 009 said, "senior managers sought assistance from development partners to support and participate in the monitoring and evaluation of the modernization reform projects." In reviewing and analyzing the Organization Annual Performance Report 2014/2015 (APR 2014/2015), it was reported that, "The Organization got support from the IMF for the evaluation of the revenue administration reform project."

Participant 004 reported, "The Organization was supported by development partners by providing technical assistants (TAs) working closely with the organization counterpart staff to ensure delivery of the agreed-upon project outcomes." All participants acknowledged that most of the IT-related performance assessments were spearheaded by the TAs during project implementation. During implementation of the IT integrated projects, the TAs built IT-related performance assessments capacity of the senior managers and organization counterpart technical staff confirmed Malapile and

Keengwe's (2014) recommendation for knowledgeable and skilled government officials to undertake IT planning and performance assessment for value added business competitive advantage.

In reviewing the consecutive Organization Annual Performance Reports (APRs) for the financial years 2014/2015, 2015/2016, and 2016/2017, the organization used the documented data and information in the reports as part of the IT ROI information during the planning and budgeting phases of new projects. All participants acknowledged that because of the successes in implementing IT enabled systems such as online tax filling; checking tax balances online; online and real-time communication with clients; one stop centers; MTN mobile payment; single customs clearance process; electronic single window; and online viewing of status of tax approvals, an enterprise resource planning (ERP) system geared towards the integration of the standalone systems had been conceived. In the Organization Annual Performance Report 2015/2016 (APR 2015/2016), it was reported, "A customs business process compendium and a verification account manual were developed, endorsed, and circulated to all customs staff for implementation at their respective work places." Participants 003, 005, and 009 affirmed reliance on previous M&E reports for IT reform projects during the formulation of new projects. The participants confirmed Grudin's (2017) recommendation to harmonize old and new IT investment goals to ensure value for money. The previous M&E reports highlighted challenges in the seamless sharing of information within organization departments and between departments, different systems within the organization still

operating in silos, management of huge volumes of the organization data and information, too much face to face interface between the organization staff and clients aiding corruption tendencies, lack of online payment platform, and delays in communication between the organization and the clients.

All participants acknowledged that direct involvement of senior managers during project design enabled them to take the lead and participate in the preparation of the integrated IT project performance reports, report dissemination, and advocacy for IT investments. Participants' responses revealed the importance of the involvement and participation of senior managers in IT reform project designs, implementation, monitoring, evaluation, and reporting. The participants' responses indicated a need for the creation of management awareness of the importance of involvement in periodic IT ROI assessment and reporting as one of the strategies leveraged for evidence-based IT reform project planning, budgeting, and implementation. The results are similar to Das and Ngacho's (2017) recommendations for regular project monitoring and evaluation, timely communication among different stakeholders, and provision of dedicated capacity building funds. The findings indicated designing and leading IT reform projects, stakeholder engagement and advocacy, as well as project monitoring and evaluation are key issues that need to be handled well if organizations are to benefit from IT ROI reporting.

Theme 2: Use Previous IT Performance Reports for Planning, Budgeting, and Implementation

Participants raised two perceptions (see Table 3): (a) the source of recommendations for future IT integration projects, and (b) the source of data for future IT planning and budgeting. Participant 002 said, “We ensure collection and custody of copies of all closed IT project reports because they contain valuable information during the planning, budgeting, and implementation of new projects.” Participant 002 confirmed Alryalat et al.’s (2017) assertion that there was a need for the availability of comprehensive information resources to inform the strategic IT investment business planning. Participant 008 emphasized, “When a new project was initiated, it was always important to make sure the achievements made in the previous projects were not lost.” In the organization Annual Work plan (AW) 2016/2017, the planning and budgeting matrix provided for a requirement regarding previous project performance in terms of successes, challenges, lessons learned, and recommendations for future interventions.

Table 3

Using Previous IT Performance Reports

Perceptions	Respondents
Source of recommendations for future IT integration projects	5
Source of data for future IT planning and budgeting	7

Participant 009 stated, “The recommendations for future IT projects were found in the organization quarterly and annual reports, and the yearly Ministerial Policy Statement of the organization.” Participant 007 said, “The Ministerial Policy Statement clearly describes the recommended areas for IT integration projects indicating the key the organization vote outputs, past vote outputs (for financial year 2014/2015), and planned

outputs (for financial year 2015/2016).” In review and analysis of the company documents, key recommendations stated in the organization quarterly and annual reports, and the yearly Ministerial Policy Statement of the organization were: (a) need to simplify the organization processes: registration, filling and payments processes to make them simpler; (b) need for reduction of revenue leakages through implementation of integrity drives by implementing electronic fiscal devices and exploring the use of new technology like tax stamps; (c) need to acquire an Enterprise Resource Planning with human resource management system, financials, and procurement components to improve productivity and efficiency, reduce duplication of data, empower staff with the right information at the right time, improve task management, enhance accuracy of data and information, ease sharing of information among the staff, and eliminate most of the manual processes; and (d) need to acquire a Disaster Recovery System and IT licenses to ensure continuity of IT services in the event of major disruptions of the organization systems, reduction of impact from known hazards, and security enhancement for prevention, detection, and correction. Participant 010 stated, “As for every one hour when the organization systems are off, there is delayed revenue of about two billion Uganda shillings (US\$ 600,000).” Participant 010 affirmed Sangar and Iahad’s (2013) finding that performance reports provided additional value in decision-making through the utilization of the intelligence created during the business intelligence system pre-implementation phase. The high loss

in terms of revenues prompted the organization to take the acquisition of a disaster recovery system and IT licenses a priority during planning and budgeting.

Participants 001, 002, and 007 noted, “Referring to previous IT reports made it possible to get credible data during the planning and budgeting for new projects.” All participants noted: (a) amount of revenue collected, (b) number of clients filling tax online, (c) number of tax payers registering online per month, (d) number of business processes reengineered per year, (e) list of approved IT innovation projects, (f) list of achieved IT innovation project outputs and challenges, (g) approved project budget, (h) actual project budget released, and (i) actual project budget spent as the major data items included in the previous reports to inform planning and budgeting for future IT projects. Participant 003 applauded the coordination role by the Commissioner General’s office that ensured timely preparation and sharing of the project implementation reports. This demonstrates the commitment by the organization top executive to ensure projects reports preparation and availability to inform subsequent planning and budgeting for new IT innovation projects. Participant 003 confirmed Krueger’s (2013) affirmation that demand for ROI reports has become increasingly common where governments are implementing IT projects with tight budgets. Also, the applauded coordination role by the Commissioner General’s office affirmed Uwuigbe’s (2014) finding that senior managers requested project teams to undertake quarterly and annual IT ROI assessments that formed reports used during planning and budgeting for the new IT investments.

Theme 3: Empower Project Teams to Undertake IT ROI Performance Assessment

Participants raised four perceptions (see Table 4): (a) IT skills development, (b) project management framework, (c) provision of financial resources, and (d) team building. All participants emphasized the need to empower project teams to undertake periodic IT ROI performance assessments. Rabogadi (2017) noted researchers defined dynamic capabilities as the ability to renew competencies to achieve congruence with the changing business environment by integrating and reconfiguring internal and external skills, resources, and functional competencies.

Participant 001 said, “IT project management skills were critical for the successful implementation of IT projects. This called for capacity-building to empower everybody involved in the projects to play respective roles and responsibilities.” Participant 005 said, “The organization internal staff capacity to undertake periodic IT ROI assessments was continuously enhanced through working with international technical assistance experts, on job mentoring out of the country, and attending specialized training courses locally or internationally.” Participant 003 reported, “Undertaking IT ROI assessments using external consultants were expensive.” Participant 005 stated, “Due to the high costs incurred to hire external consultants to undertake IT ROI assessments, the organization decided to empower the project staff with the specialized skills to enable them undertake most of the IT ROI assessments internally.”

Table 4

Empowering Project Teams

Perceptions	Respondents
IT project management skills development	5

Project management framework	8
Provision of financial resources	6
Team building	5

Participant 004 reported, “Under the project management framework, project management, M&E, cost and benefits analysis, internal rate of return and net present value skills training was a prerequisite.” Participant 007 said, “As soon as a staff member is nominated to participate in the implementation of any modernization project, the organization human resources department carries out a skills gap assessment for the staff to inform the designing of a targeted skills training program to ensure the staff performs the assigned roles and responsibilities.” All participants testified having acquired skills in M&E, project management, cost and benefits analysis through participation in the implementation of different projects. The participants’ testimonies of the possession of various skills in M&E, project management, and cost and benefits analysis disconfirmed Malapile and Keengwe’s (2014) finding that most government officials in developing countries lacked the technology planning and management knowledge and skills.

Participant 005 stated, “During project designs, the organization management prioritized skills training with requisite funding because were regarded one of the critical success factors for the IT innovation project implementation.” The organization APR 2016/2017 detailed that IT capacity development enhanced business processes by enabling the workflow to become more effective, efficient, and adaptable to the IT changing environments. The existing IT staff capacity had enabled integration of business process covering the design, modeling, execution, monitoring, and optimization of the systems.

The report also revealed that the enhanced business process management led to increased accountability and improved reliability of the organization service delivery systems.

Participant 004 underscored the broadness of the structure and composition of the IT project teams with different expertise that promoted internal capacity building among the teams. Participant 002 affirmed that project implementation team members were drawn from different departments with different specializations to form project innovation *think tanks*. To guide the subject matter for which IT is being integrated, Participant 001 said, “The appointed project managers were subject matter specialists, not IT specialists in particular.” The project managers guided the team members that comprised subject matter specialists and IT technical personnel. In this case, the organization management considered IT investments as an enabler to the core business processes of tax collection by the organization.

Participants acknowledged that to strengthen and harness the benefits of IT in the core business operations, the organization established a full-fledged division in charge of IT with its own highly trained staff. Participant 001 affirmed, “The ICT team continuously consulted with the departments to establish relevant IT solutions to enhance and improve revenue collection and administration functions.” Participant 002 asserted, “Participatory planning approach for the integration of IT in different business processes was key where the subject matter specialists told the ICT team what they wanted to do indicating where IT applications were required.” Participants 004, 006, and 009 acknowledged the approach of consulting different departments on the IT requirements.

Participants 001, 002, 004, 006, and 009 affirmed Wu et al.'s (2015) assertion that although most IT-related activities still rely heavily on IT professionals, non-IT CEOs need to realize the criticality of IT alignment to corporate strategic objectives.

Participants 002 and 005 acknowledged the technical support provided by the ICT division team during the determination of organization automation requirements analysis where IT solution integration was at center stage. The Organization Annual Performance Report 2015/2016 (APR 2015/2016) stated, "Different business processes were enhanced through system design, modeling, execution, monitoring, and optimization resulting into the organization's increased accountability, improved reliability, and simplified processes for service delivery platforms championed by the IT division."

Participant 001 said, "Team-building was one of the critical areas emphasized under capacity-building areas for IT integration reform project teams." Participant 003 stated, "Teamwork was the main driver that enabled the organization to successfully implement IT projects." Participant 010 affirmed, "The organization project staff operated as teams to enhance skills for successful implementation of IT projects." Participant 007 declared, "Working as a team promoted the sharing of experiences during project implementation." This emphasis on empowerment of project teams is consistent with Rabogadi's (2017) recommendation for organizations to survive and prosper under conditions of change, business managers must develop dynamic capabilities for employees to create and modify the way they achieve competitive advantage. In reviewing the organization Annual Performance Report 2016/2017 (APR 2016/2017)

stated, “Teamwork through holding in-house staff innovation discussions and public dialogues on the quality of services delivery resulted into increased accountability, improved reliability, and simplified processes for service delivery platforms.”

Participants 001, 003, 004, and 008 affirmed constant close contact with the tax payers had enabled the organization to reengineer the various service delivery channels improving the systems user interfaces. The findings emphasize the importance of empowering project teams to be innovative and undertake periodic IT ROI assessments to ascertain the business benefits.

Theme 4: Ensure Completeness of IT ROI Reports

Participants noted three perceptions (see Table 5): (a) detailed reports, (b) sharing reports among government agencies, and (c) collaboration among key stakeholders.

Participants identified those perceptions as the key factors that led to the preparation of comprehensive IT ROI reports. Participant 002 observed, “There was a need for milestone-based reporting to have adequate performance information on previous projects during planning, budgeting, and implementation of new IT projects.”

All participants acknowledged that preparation of comprehensive performance reports was essential, not only for IT projects but for entire organization programs. Performance for every project and program milestone was emphasized in the organization Corporate Plan 2016/2017-2019/2020. Management expected performance reports to cover the entire result value chain from inputs, processes, outputs, and outcomes.

Table 5
Completeness of IT ROI Reports

Perceptions	Respondents
Milestone-based reporting	10
Sharing reports among government agencies	6
Collaboration among similar institutions	5

Participant 010 said, “The sharing and reviewing of reports at technical, departmental, and top management levels enabled identification of missing data and information.” McGrane (2016) emphasized information sharing was an important process for improving the performance of diverse teams. Participant 005 stated, “Reports prepared for the top management required comprehensive information for evidence-based decision-making during planning, budgeting, and implementation of new IT solutions.” Participant 002 acknowledged, “The introduction of milestone pay for staff under the project management framework required preparation of detailed performance reports per milestone before staff members were paid.”

Participants 002, 007, and 010 acknowledged, “Reports were used not only by the organization but were also shared with the Ministry of Finance, Planning, and Economic Development (MOFPED) for incorporation into the Ministerial Policy Statements.” The sharing of the organization performance reports called for information completeness to ensure credibility of the tax collection statistics. For example, in the MOFPED Annual Performance Report 2015/2016 was the statement, “The organization performance had

improved as a result of IT investments manifested through comprehensive, timely reporting.”

Participant 003 insinuated learning from the successes of projects of similar institutions in other countries like the Tanzania Revenue Authority was found of value during the planning, budgeting, and implementation of new IT investments in Uganda, and Participant 002 stated, “Comprehensive IT ROI reports provided requisite information during the planning, budgeting, and implementation of IT projects.”

Participant emphasis on report sharing and collaboration among stakeholders is consistent with Das and Ngacho’s (2017) finding that information-sharing and collaboration among project participants a critical success factor influencing the performance of development projects. The findings call for project teams to prepare periodic comprehensive IT ROI reports by providing information on all monitoring and evaluation performance indicators identified during project formulation. The comprehensiveness of the reports should be linked to a milestone pay arrangement. Deliberate efforts should be made to periodically share the reports among government institutions and other key stakeholders to use during planning, budgeting, and other decision-making functions. During information-sharing, incomplete reports should be identified, and the respective project implementation team asked to improve on the completeness of the IT ROI reports.

Theme 5: Ensure Comprehensive M&E Indicators for IT Projects

Participants noted two findings (see Table 6): (a) key result areas performance indicators, and (b) budget execution reports. Perceptions of participants required that project teams develop adequate M&E indicators at output, outcome, and impact levels. Participant 009 said, “Elaboration of key result areas with requisite M&E indicators at output and outcome levels for each of the projects was a requirement.” Participant 002 reiterated, “Periodic reporting at output and outcome levels based on M&E indicators was a requirement.”

Table 6

Comprehensiveness of M&E Indicators for IT Projects

Perceptions	Respondents
Key result areas performance indicators	10
Budget execution reports	7

All participants agreed that annual and quarterly IT project performance reports were prepared that covered all specified M&E indicators at the output and outcome levels.” Yun, Choi, de Oliveira, and Mulva (2016) noted project managers using performance metrics evaluated the performance of their projects during the various phases. All participants concurred, “IT projects had adequate M&E indicators that provided adequate data and information for evidence-based planning, budgeting, and implementation for new IT projects.”

Participant 005 stated, “IT project expenditures were aligned to the M&E indicators at output and outcome levels for harmonized plan and budget execution

reporting.” Participant 007 explained information on each of the IT projects in the ministerial policy statements were based on the set of M&E indicators as financial projections for subsequent years depended on the performance of the previous IT investments. Participant 010 said, “Performance assessments were not only covering the organization’s IT investments but the entire investment portfolio of human, materials, and financial resources.”

All participants acknowledged the need to identify comprehensive M&E indicators for IT projects to guide IT ROI performance assessments. M&E indicators enhanced evidence-based reporting and accountability during implementation of the IT projects in the organization. Comprehensive M&E indicators for the previous IT projects provided adequate data and information during planning, budgeting, and implementation for the new projects. The study participants’ responses are consistent with Maalim and Kisimbii (2017), who emphasized right practices for M&E adoption for projects to succeed. The finding emphasizes the need for a robust project M&E framework and system to ensure systematic monitoring and evaluation of IT investments and performance reporting according to project objectives.

Theme 6: Ensure Availability of Periodic IT ROI Assessment Reports

Four needs were identified by participants (see Table 7): (a) adopt a project implementation unit, (b) coordinate monitoring, evaluation, and reporting activities, (c) automate business processes, and (d) set up project committees. All participants emphasized the availability of the periodic IT ROI reports resulted from the adoption of a

project implementation unit approach. Participant 001 said, “The organization success in availing periodic IT ROI reports was due to the adoption of a project implementation unit approach.” The seconded project staff was completely detached from the day-to-day responsibilities in the departments.” Participant 002 indicated, “Seconded project staff was offered good remunerations paid against milestone accomplished.” Participant 009 testified, “I enjoyed working on a project as a consultant, yet also as fulltime and mainstream staff. It was very motivating, let alone the specialized training opportunities.”

Table 7

Strategies for Ensuring Availability of Periodic IT ROI Reports

Perceptions	Respondents
Adopt project implementation unit approach	10
Coordinate monitoring, evaluation, and reporting	10
Automate business processes	10
Set up project committees	10

All participants acknowledged the role played by the Research, Planning, and Development Unit in coordinating periodic monitoring, evaluation, and reporting for various projects and programs. Participant 002 noted the unit was under the Office of the Chief Executive to coordinate and spearhead the planning, budgeting, monitoring and evaluation, and performance reporting. Participant 005 said, “The unit was empowered with human and financial resources to lead the development of the long, medium, and short-term institutional development plans with necessary M&E indicators and standard reporting formats.” Participant 002 noted when departments met to plan for new IT projects, they reviewed the benefits from the previous projects using the existing IT

projects performance evaluation reports. The planning team in their review of previous IT performance reports found gaps that were used to identify new action areas for consideration of new IT investments.

Participants 004 and 005 indicated the organization had adopted a performance management system that spelled out individual staff performance requirements. All participants acknowledged that leader expected every staff member to prepare individual performance reports for incorporation into project or program level performance reports. Participant 002 affirmed, “Under the performance management system, standard reporting formats were developed for reporting at the individual staff, section, division, and department levels.” Participant 006 attested to the periodic performance appraisal system from individual staff, section, division, department, and organizational levels ensured availability of the organizational reports including the IT ROI aspects by the IT project teams. Participant 002 affirmed the organization periodic performance appraisals at the various levels led to the availability of IT ROI reports prepared by the project managers. Participants 002, 004, 005, and 006 attested the relevance of adopting a performance management system by the organization, confirming Hidding and Nicholas’s (2017) remark on project management practice that all key stakeholders should understand and agree on the project’s purpose, value-added outcomes, measures of success, and have a personal stake in the success or failure.

Afolabi (2018) stressed using formal management processes or methodologies to manage, regulate, and standardize implementation of information systems projects. All

participants noted that under the project management framework, the organization set specific timelines for the performance reports production, and all project managers were required to adhere to the set reporting guidelines. Participant 004 stated, “The project management framework emphasized timeliness of reports, empowerment of project teams, results monitoring and evaluation, setting up of project committees, performance measurement, stakeholder engagement, and communication.” Adherence to the set project reporting timelines by project managers led to the availability of consistent IT ROI reports to inform the planning and budgeting processes. Participant 004 stressed, “Individual departments produced their own periodic reports that were validated at management committee meetings.” Participant 002 noted, “Top management reviewed all reports to assess outstanding issues, challenges, and lessons learned from ongoing or completed projects.” Participant 008 affirmed distribution and sharing of electronic copies of the IT ROI project reports to top and middle managers was by posting them on the organization intranet and printed hardcopies physically delivered by the office messenger with a delivery book for consent of receipt of the reports. All participants acknowledged top and middle level managers reviewed the adequacy and comprehensiveness of the performance reports and provided written comments on areas where they did not adhere to the standard project report format. Participant 003 stressed, “It was imperative for every manager to crosscheck the performance report shared against the respective project charter to ensure compliance to the set objectives, strategies, and activities.” All participants said, “After the review of the reports, the comments were

used to improve the quality of the reports that were leveraged during the planning and budgeting processes for the new IT innovation projects.”

All participants affirmed that automation of the organization operations created an enabling environment for the compilation and sharing of reports online. Participant 002 testified “Most performance reports were accessed online any time required.” Participant 001 indicated most of the organization IT projects performance reports were in electronic format and were stored in a central repository accessible at any time by passwords. The Organization Annual Performance Report 2014/2015 (APR 2014/2015) indicated, “Automation had led to improved efficiency in revenue administration and had simplified the customs processes, reducing the turnaround time from the initial 18 days to 4 days.” In addition, the APR stated the Tax Register Expansion Program (TREP) implementation enabled easy capture of informal sector taxpayer data and also enhanced the analytics that resulted in recovery of revenue that was in arrears. The revelations on the reporting timeliness and automation of the organization operations were consistent with the Johnson and Zhang’s (2018) emphasis that understanding the relationship between IT intensity and reporting lag is important because IT spending has become a larger portion of firms’ budgets and has become the largest category of capital expenditures in businesses. The organization’s current largest expenditure acknowledged by all

participants was investments in IT solutions to enable realizing the ongoing institutional modernization strategy.

All participants stated that all the different project committees were established by management to oversee the formulation and implementation of new IT innovation projects. The committees were responsible for proper planning, implementation, monitoring, and evaluation of the projects. Participant 002 acknowledged, “The organization believed in working through committees to advance new innovations.”

All participants affirmed the project steering committee consisted of the Permanent Secretary of MOFPED, the Organization Board Chair, the Organization Chief Executive Officer, other top executives from key stakeholder government ministries and agencies, and Donor Community as observers, that reviewed and considered the project management and implementation frameworks, and annual progress reports. In addition to the review of the projects management and implementation frameworks, the steering committee dealt with policy issues that impacted the implementation of the IT projects, approval of project staffing guidelines, and mobilization of resources. Participant 002 said, “The project implementation team consisted of the Organization’s senior managers that periodically oversee technical implementation aspects of IT projects.” Participant 007 said, “The technical implementation teams were charged with the day-to-day running

of the projects.” Participants 005 and 009 acknowledged different committees periodically monitored and evaluated the progress of the projects.

All participants stated the organization had processes and structures in place that ensured information availability during planning, budgeting, and implementation of IT projects and noted availability of IT ROI reports was critical during planning and budgeting for new IT solutions. The participants’ views were similar to Afolabi’s (2018) recommendation regarding the use of formal management processes or methodologies to manage, regulate, and standardize implementation of information systems projects. The findings manifest the strategies required of institutions to ensure availability of periodic IT ROI reports for use during planning and budgeting processes. The key strategies emphasized included: setting up an institutional performance management framework, automating core business processes and operations, adopting a standardized project management framework with requisite committees, and ensuring coordination of project monitoring, evaluation, and reporting.

Theme 7: Implement a Change Management Program

Participants identified five perspectives regarding the implementation of a change management program (see Table 8). They were (a) shared vision for automation, (b) a change management plan, (c) involve responsible managers in managing change, (d) staff participation and training on new systems, and (e) information and knowledge flow and sharing. The perspectives pertained to the traits of the organization staff and stakeholder

resistance to change that negatively impacted the availability of IT ROI reports leveraged during the planning, budgeting, and implementation of new projects.

Shared vision for change is important to direct the system change effort and to serve as a foundation from which specific strategies need to be developed for arriving at a future end-state (Ziemba & Oblak, 2015). Sixty percent of the participants acknowledged staff collectively possessed a shared vision for the business processes automation that called for periodic IT ROI assessments to generate reports used during planning and budgeting for new IT projects. Participant 001 said, “The organization had to ensure the stakeholders understood the vision of how the IT projects would transform the organization.”

Table 8

Change Management Issues

Perspectives	Respondents
Shared vision for automation	6
A change management plan	7
Involve responsible managers in managing change	5
Staff participation and training on new systems	5
Information and knowledge flow and sharing	4
Performance measurement culture	6

However, some participants had reservations about the organization’s consistency in carrying out periodic IT ROI assessments. Participant 004 noted, “Sometimes it was difficult to isolate IT ROI from other investments assessments of the organization.”

Participant 005 insinuated, “The ROI reports covered the entire organizational investments other than IT alone.” Participant 003 acknowledged the great importance of

IT ROI reports during planning, budgeting, and implementation of new IT-related projects.

Participant 001 disclosed, “A change management plan had been developed to guide the organization modernization agenda.” Participants acknowledged the activities carried out within the organization to manage human and other resources. Participant 002 stated, “An overall objective, specific objectives, strategies, activities, and budget were elaborated into a plan to guide the implementation of the organization change management program.” Ziemba and Oblak (2015) stated a clearly documented change management process helps make a map of the tasks and resources required.

All participants acknowledged for the change to take effect within the organization, the senior managers took it upon themselves and ensured the implementation of the change management process succeeded. Participant 006 testified, “At every meeting our head of department briefed the entire team about the benefits of the modernization agenda and roles expected from each of the staff members for success.” Commitment of line managers to change management creates a situation that they identify with a change (Ziemba & Oblak, 2015). Participant 003 emphasized, “As a head of department, it is my responsibility to ensure that change brought about by the adoption of IT solutions is embraced by everybody.” The revelation by the participants

conforming to Ziemba and Oblak (2015) confirms the important role played by managers during the implementation of change management in organizations.

All participants underscored the fact staff were encouraged to participate in different IT integration projects irrespective of the levels of seniority. Participant 002 stated, “Participatory planning approach was a norm in the organization.” Participant 008 said, “Not only did the staff participate in the project conception and implementation but were also trained on the usage of the new systems before roll out.” Staff training led to more understanding of the new systems and recognition with the success brought about by the new system changes. This increased the level of staff ownership of the modernization agenda interventions.

Firms gain sustainable competitive advantage through their ability to create and use knowledge (McGrane, 2016). Participants 002 and 008 affirmed, “Information and knowledge management in the organization were major challenges to ensuring availability of IT ROI assessment reports.” According to Ziemba and Oblak (2015), organizations improve their ability to be informed about running a project by providing better access to consistent, timely, and accurate data. McGrane (2016) noted certain organizational cultural characteristics that stimulate informal knowledge-sharing practices increase knowledge-sharing behavior. All participants acknowledged the role IT investments had played in flattening the organization institutional structure as a modern organization in the 21st century. All participants noted the flattened institutional structure reduced bureaucracy in decision-making and enabled seamless information sharing

within the organization that facilitated planning, budgeting, and implementation of new IT projects. In addition, all participants affirmed the integrated IT solutions had enhanced transparency and accountability during the organization's projects implementation, monitoring, evaluation, and reporting. The organization lean institutional structure was depicted in the Organization Corporate Plan 2016/2017 – 2019/2020 with highly experienced and motivated members to brainstorm on innovations geared towards the promotion of online user-friendly applications and effective tax collection mechanisms.

Performance measurement is a critical factor for the success of information system projects (Ziemba & Oblak, 2015). Participant 009 acknowledged there was no performance measurement framework within the organization for systematic information and knowledge management. In the organization Corporate Plan 2016/2017-2019/2020 strengths, weaknesses, opportunities, and threats (SWOT) analysis results, lack of a data management framework was listed as a weakness. Participants 001 and 007 indicated lack of a performance measurement framework led to cases where previous IT ROI reports were not available. Ziemba and Oblak (2015) emphasized implementation progress must be measured regularly for more efficient and effective control.

The Organization Annual Performance Report 2015/2016 (APR 2015/2016) stated performance information and knowledge management helped to capture, develop, share, and effectively use organizational information and knowledge. Participant 002 affirmed that the performance information and knowledge management framework in the organization sought to enhance the process of acquisition, transfer, storage, and

management of information and knowledge resources for the organization. The participants' revelations are consistent with McGrane's (2016) assertion that knowledge management is critical to achieving competitive advantage in the marketplace. The findings revealed challenges to the formulation and implementation of change management programs in institutions. In this case, senior management support, possession of a shared vision, having a dedicated change management plan, staff participation and training, seamless information flow, and having a performance measurement framework in place for effective implementation of a change management program cannot be overemphasized.

Participant 002 asserted, "The organization had paid minimal attention to carrying out specific assessments for the IT ROI because the assessment exercises were costly and increasing year by year." In the organization Corporate Plan 2016/2017-2019/2020, inadequate investment appraisals or cost benefit analysis was identified as one of the major challenges in implementing the plan. All participants affirmed the MOFPED had not sensitized public sector institutions about the value of carrying periodic IT ROI performance assessments. The inadequate sensitization of the MOFPED management had resulted into limited attention on IT ROI assessment reports during budget allocation for IT projects. This demonstrates the need for a performance measurement framework to address the lack of periodic IT ROI assessment reports challenge. The affirmation by the participants about the existing inadequacies in undertaking periodic IT ROI assessments confirmed to Alencar et al.'s (2013) recommendation that organizations need to adopt an

IT investment management model with requisite assessment, comparison, and control parameters.

Findings Related to the Conceptual Framework

The conceptual frameworks used in this study were the strategic IT alignment model (Venkatraman et al., 1993) and the framework for success (Hubert Ofner et al., 2013). The IT alignment conceptual framework model emphasizes that IT plans must align with overall business strategies to achieve operational objectives and competitive advantages. All participants acknowledged that the Organization 5-year Corporate Plan 2016/2017 – 2019/2020 was the overall business development strategy with IT investments as one of the strategic interventions. Participant 002 stated, “Planning for IT projects is guided by the organization modernization program elaborated under the 5-year corporate plan.” Participant 001 said, “Any IT project formulated must be aligned to specific business process objectives of the organization articulated under the corporate plan.” Social capital between IT and business units drive alignment and IT business value (Wagner et al., 2014).

Participants 005, 007, 008, and 010 affirmed different departmental operational mandates guided the kind of IT applications to adopt within the organization. Participants 005, 007, 008, and 010 affirmation conformed to the Venkatraman et al. (1993) IT alignment model developed to promote aspects related to IT alignment. Participant 002 emphasized, “IT was an enabler for the organization to achieve efficient and effective service delivery.” IT integration between business units and IT is achieved through

strategic alignment processes (Wu, Straub, & Liang, 2015). The participants' affirmation confirmed study findings conformity with the Venkatraman et al. model adding to the existing research knowledge on IT alignment.

The framework for success underscores the identification of areas of improvement in relation to the aspect of performance assessment through continuous data collection to inform organizational strategy improvement. Participant 002 observed, "There was a need for milestone-based reporting to have adequate performance information on previous projects during planning, budgeting, and implementation of new IT projects." Participant 002 observation related to White and O'Kane's (2012) reference model that emphasize master data management implementation aspects. All participants concurred, "IT projects had adequate M&E indicators that provided adequate data and information for evidence-based planning, budgeting, and implementation for new IT projects."

Participant 010 stated, "The organization set up a dedicated data warehousing section to efficiently and effectively mine the vast data resource collected from different business operations." Many companies lack sufficient data management strategies to exploit the existing amount of data (Spruit & Pietzka, 2015). Participant 003 said, "The organization accorded great importance to data and data analytics that has been key for evidence-based planning, monitoring and evaluation, and reporting." Participant 003's statement conformed to Spruit and Pietzka's (2015) assertion there is need for the formulation of effective and comprehensive organization data management strategies. Spruit and Pietzka promoted a master data management implementation activity cycle

consisting of strategy formulation, evaluation, execution, and review with data model, data quality, usage and ownership, data protection, and maintenance, key practices that all participants acknowledged.

Findings Related to Existing Literature

The findings from this study confirmed the importance of undertaking periodic performance assessment of ROI from IT. Krueger (2013) underscored the reward for carrying out periodic ROI to support informed decision-making by leveraging the clear understanding of the projected benefits of technology investment. The participants implored the value attached to undertaking periodic IT ROI assessments to check value for money invested in the IT projects. Bar-Dayyan et al. (2013) underscored the need for continuous determination of cost savings through ROI assessments to inform management during planning and budgeting for further investment in the electronic health records. The participants emphasized the value of information from IT project monitoring and evaluation. Maalim and Kisimbii (2017) noted monitoring and evaluation offered reliable information to guide managerial decision-making, knowledge-sharing, and upholding accountability for IT investments. The organization project management framework is in conformity with the Afolabi (2018) recommendation about the use of

formal management processes or methodologies to manage, regulate, and standardize implementation of information systems projects.

Applications to Professional Practice

The purpose of this study was to explore the strategies Ugandan senior public sector officials use to leverage IT ROI reports during planning, budgeting, and implementation of IT projects to reduce failure rates. The findings articulated in the study report might contribute to increased effectiveness of the organization by providing further insights to the top management, planning and budgeting, and implementation teams to strengthen current strategies. This study report is also hoped to benefit other public sector institutions that coordinate and manage national IT planning, budgeting, and implementation. The identified and documented strategies used by the organization may be adopted by the other public sector institutions as well.

The study report contains valuable information and knowledge of the strategies the organization uses to reduce IT project failure rates that can benefit other Ugandan public sector institutions and those outside Uganda. I plan to share these findings with the organization and other key Ugandan public sector institutions that coordinate and manage IT planning, budgeting, monitoring, evaluation, and reporting. Other targeted Ugandan public sector institutions include the Office of the Prime Minister, Ministry of Finance, Planning, and Economic Development, Ministry of ICT and National Guidance, National Planning Authority, and National Information Technology Authority-Uganda. Other

means I plan to use to share the findings include publishing in relevant journals, magazines, and making presentations at various business management and ICT forums.

Implications for Social Change

From a narrow perspective, the study was directly focused on the improvement of IT planning, budgeting, and implementation by leveraging IT ROI reports as the precursor of the delivery of e-government services to the citizens. The results of the study have potential implications for positive social change, including increased accessibility of e-government services by citizens and other stakeholders. In addition, the study has potential implications to increase citizen online participation in policy formulation, planning, monitoring and evaluation, governance, and promotion of transparent and open government. Reduction of IT project failures rates in government institutions that leverage IT ROI reports during planning, budgeting, and implementation have potential implications to increase funding for the social and productive sectors leading to reduction of poverty and improvement of standards of living of the citizens. Successful IT investments in M&E and financial management systems improving transparency and accountability have potential implication to attract additional donor funding to developing countries to improve service delivery to the citizens and other residents.

Recommendations for Action

The purpose of this study was to explore the strategies Ugandan senior public sector officials use to leverage IT ROI reports during planning, budgeting, and implementation of IT projects to reduce failure rates. The key themes that emerged

included awareness and involvement of senior managers in IT ROI reporting, valuing the importance of previous performance reports, capacity-building for project teams; ensuring completeness of IT ROI reports, comprehensive M&E indicators for IT projects, ensuring availability of periodic IT ROI reports, and implementing a change management program. Under each of the seven themes, participants identified issues that affected the availability and use IT ROI reports. Although all participants acknowledged the importance of undertaking periodic IT ROI assessments, some had reservations about the organization's consistency in carrying out periodic IT ROI assessments. However, one participant asserted that the organization had paid minimal attention to carrying out specific assessments for the IT ROI because the assessment exercises were costly and were becoming more so each year. With the apparent mindset of senior managers and lower cadre staff in public sector institutions, there is a need to formulate and implement a communication and advocacy program to create awareness of the value of carrying out periodic IT ROI assessments across public sector institutions. Inadequate sensitization of the MOFPED officials resulted in allocation of limited budgets for IT reform projects.

Lack of an information and knowledge management strategy was another bottleneck noted by study respondents and was identified as a weakness in ensuring availability of IT ROI assessment reports. Participants stated the lack of an information and knowledge management framework led to cases where previous IT ROI reports were not available. This suggests that public sector institutions should develop and operationalize an information and knowledge management framework to ensure efficient

and effective information and knowledge management. An information and knowledge management framework should enhance the process of acquisition, transfer, storage, and management of information and knowledge resources for institutions.

Recommendations for Further Study

The purpose of this qualitative single-case study was to explore the strategies Ugandan senior public sector officials use to leverage IT ROI reports during planning, budgeting, and implementation of IT projects to reduce failure rates. I recommend a comparative study in other government institutions to assess the availability and use of periodic IT TOI reports during planning, budgeting, and implementation of IT projects. In addition, to establish the percentage the IT ROI contributes to overall organization performance, I recommend an ROI study be carried out for all areas of investment within the institution. To replicate this study, I recommend future researchers to employ mixed-method study to validate the findings. I also recommend similar research to be replicated in another African country and any other developing country in the world to compare the findings.

Reflections

I have over 25 years of professional experience and expertise in IT, M&E, MIS, and e-government. I have worked with public and private sector institutions dealing with policy formulation, strategy and master plan formulation, implementation, and monitoring and evaluation of IT, MIS, and e-government projects and programs. I have also participated in the formulation of a sector and institutional strategic investment plans

with requisite M&E frameworks and systems. With the above profile, I endeavored to limit personal bias through member checking, triangulation, statements from participants, and avoided sharing my point of view during interviews. I protected the participants by ensuring nondisclosure of their personal information and coding of their responses to the questions.

During data collection and analysis, I ensured adherence to the ethics and integrity required of a professional researcher. I avoided self-bias and influence on the data and distortion of the analysis results. Data collected from respondents was comprehensively captured and subjected to a professional analysis process to generate key findings and recommendations. Most findings surprised me despite my rich and broad experience in IT and e-governance planning, budgeting, and implementation in both public and private sector institutions. The uniqueness and authenticity of the findings from the senior managers gives me confidence in the outcome of the study and makes me believe the areas recommended for future research might generate findings that are even more interesting.

Conclusion

The purpose of this study was to explore the strategies Ugandan senior public sector officials use to leverage IT ROI reports during planning, budgeting, and implementation of IT projects to reduce failure rates. Considering the seven themes on the strategies leveraged for IT ROI reports, public sector institutions should pay greater attention to the establishment of a comprehensive results-based M&E system as the key

foundation for the determination, availability, and use of IT ROI reports. Utilization of proper strategies by the public sector will have a far-reaching effect on increasing e-government services access and promote transparent and open government-essential requisites for the 21st century.

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Appendix A: Participants

1. Top Management
2. Top Management
3. Research, Planning and Development department
4. Information Technology department
5. Budgeting Unit
6. e-Services Provision Division
7. Policy Formulation Division
8. Compliance and Business Analysis Division
9. Department of Tax Investigations
10. Department of Internal Audit & Compliance

Appendix B: Interview Protocol Open-ended Questions

1. What were your experiences with the organization undertaking periodic performance assessments of ROI from IT?
2. What were the benefits from leveraging the IT ROI reports from the previous IT performance assessments during planning and allocation of budgets for the new IT projects?
3. What capacity existed in the organization to undertake periodic IT ROI performance assessments?
4. What were your experiences with whether the existing IT ROI reports provided sufficient information for planning, budgeting, and implementation?
5. What specific past data and information on IT ROI existed for evidence-based decision-making for the new IT investments for the organization?
6. What strategies did the organization use to ensure the availability of periodic IT ROI assessment reports leveraged during the planning, budgeting, and implementation of new IT projects?
7. What other issues affected the availability and leveraging of IT ROI reports during planning, budgeting, and implementation of new IT projects in the organization?