EFFECT OF INFORMATION TECHNOLOGY STRATEGIES ON ORGANIZATION EFFECTIVENESS
A CASE STUDY OF UNITED STATES INTERNATIONAL UNIVERSITY-AFRICA

BY

ERNEST ANDUGO

UNITED STATES INTERNATIONAL UNIVERSITY-AFRICA

FALL, 2017
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A Research Project Report Submitted to the Chandaria School of Business in Partial Fulfilment of the Requirement for the Degree of Masters in Business Administration (MBA)

UNITED STATES INTERNATIONAL UNIVERSITY-AFRICA

FALL, 2017
STUDENT’S DECLARATION

I, the undersigned, declare that this is my original work and has not been submitted to any other college, institution, or university other than the United States International University-Africa in Nairobi for academic credit.

Signed: ________________________ Date: ________________________
Ernest Andugo (ID 635148)

This project has been presented for examination with my approval as the appointed supervisor.

Signed: ________________________ Date: ________________________
Dr. Juliana Namada

Signed: ________________________ Date: ________________________
Dean, Chandaria School of Business
ABSTRACT
The purpose of this study was to determine effects of Information Technology strategies on United States International University-Africa’s organization performance. The study sought to establish how blackboard affects learning efficiency, library information systems affect academic research output and how enterprise systems integration affects productivity at United States International University-Africa. The study considered quantitative methods and descriptive statistics features predominantly in the collection and analysis of data. Descriptive statistics addresses the research questions through empirical assessments that involve numerical measurements and statistical analysis. The variables identified in the research topic were organization performance as the dependent variable and information technology strategies as independent variables.

The study sought to establish the relationship between the chosen variables and to what extent each variable affects the performance of United States International University-Africa. The population of study was 392 staff at the university. Sampling technique chosen for this study was stratified random sampling technique using a sample of 137 respondents, approximately 35% of the target population. A structured questionnaire was formulated using the research questions in the study and was self-administered and sent to constituents through email and drop and pick hard copies method. In this study, the descriptive statistics such as percentages and frequency distribution was used to analyze the demographic profile of the participants. In order to describe the data, the study used means of each variable and correlation analysis between the independent and the dependent variable.

The findings revealed that Blackboard e-learning is aligned to the mission of the university and the institution encourages its use to support learning. The study established that Blackboard makes it easy to organize course-learning outcomes and has improved course content delivery. The second objective revealed that there was uncertainty on number of scholarly publications at the university have increased since the introduction of library information systems. In addition, the Online Public Access Catalog search engine has easy to use features. The third objective revealed that enterprise system integration has contributed to a reduction in labor costs due to streamlined operations and better decision making. The findings revealed that integrated systems reduce the orientation and training effort and allows university employees to work and resolve issues from a single workstation.
It is recommended that the university needs to encourage production of more literary material conveniently using the Online Public Access Catalogs. There is a need to educate the employees on the benefits of Blackboard considering the amount of investment made. Students should be encouraged to use of Blackboard to support peer learning. Secondly, the university needs to create awareness on increased number of scholarly publications at the university’s library information systems. Lastly, the university needs to maintain enterprise system integration to reduce labor costs because of streamlined operations. Data security needs to be enhanced to safeguard the institution’s data.

Further studies need to be undertaken in other private and public learning institution to be able to compare and generalize the findings. Other studies should also be done to determine student’s perception and use of the internet as a hub for learning and the effect of modern technology on students’ performance.
ACKNOWLEDGEMENT

I thank the almighty God for His guidance, strength and mercy for the successful completion of this project. I also thank my supervisor, Dr. Juliana Namada for her input and guidance and to my wife Nelly, for her support in the successful completion of this project.
DEDICATION
To my parents, Mr. and Mrs. Andugo, my wife Nelly, daughter Ella and my siblings. Thank you for your encouragement, love and care during this involving time.
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<tr>
<td>ANOVA</td>
<td>Analysis of variances</td>
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<tr>
<td>BCMS</td>
<td>Building Control Management System</td>
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<tr>
<td>CDROM</td>
<td>Compact Disc Read only memory</td>
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<td>CUE</td>
<td>Commission for University Education</td>
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<td>FBS</td>
<td>File Booking System</td>
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<td>FMS</td>
<td>Facility Management System</td>
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<td>ICT</td>
<td>Information and Communications Technology</td>
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<td>IT</td>
<td>Information Technology</td>
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<td>LMS</td>
<td>Learning Management System</td>
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<tr>
<td>OECD</td>
<td>Organization for Economic Co-operation and Development</td>
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<td>OPAC</td>
<td>Online Public Access Catalog</td>
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<td>RTMS</td>
<td>Resources Tracking and Management System</td>
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<td>SD</td>
<td>Standard Deviation</td>
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<td>TQM</td>
<td>Total Quality Management</td>
</tr>
<tr>
<td>USIU-Africa</td>
<td>United States International University-Africa</td>
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<tr>
<td>WSCUC</td>
<td>WASC Senior College and University Commission</td>
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CHAPTER ONE

1.0 INTRODUCTION

1.1 Background of the Study

Information and Communications Technology (ICT) is technology that supports activities involving the creation, storage manipulation and communication of information (No, 2012). ICT has led to the emergence of different forms of electronic and communications tools such as laptops and computers, computer networks, the Internet digital printers and mobile technology, which enable organizations to record, store, process, retrieve, and transmit information (Kokt & Koelane, 2013). In the education sector, ICT is used to support teaching, learning, administration and research activities in institutions of higher learning. It helps in managing student admission and examination records, as well as monitoring and evaluation of staff, planning for school activities, curriculum development, financial management and information dissemination. It promotes communication between school units, parents, and the administration (Oboegbulem & Ugwu, 2013).

The advances in Information Technology enable the business to respond to the new and urgent competitive forces by providing effective management of interdependence (Chaka, 2008). The accessibility of technology increases the economic, cultural and political relationship between countries. In particular, the information communication technology penetration has risen in many countries by the advancement of technology (Bloom, Sadun & Reenen, 2008). To define the concept of performance is necessary to know its elements characteristic to each area of responsibility. To report an organization's performance level, it is necessary to be able to quantify the results (Lynch, 2011).

According to (Srinivas, 2000), Information technology has become integral part of every organization by enabling them to communicate effectively and easily share the ideas and information on a global scale. It is cost effective because computerization of business processes increases productivity. ICT can play a major part in diminishing the workload of the administrator especially in keeping daily records of students (Ibrahim, 2015). ICT tools such as e-tutor and e-student system could provide significant atmosphere in the preparation of technical education graduate to face the challenges for the world to work in the 21st century (Seng 2007). ICT lifts people towards their work to improve their skills and work efficiency with other remarkable developments.
Information and Communication Technology (ICT) plays a vital role in supporting powerful, efficient management and administration in the education sector. It is specified that technology can be used right from student administration to various resource administration in an education institution (Christiana Maki, 2008). Interactive e-learning tools such as announcements, discussions, virtual classrooms, chat and email enhance learning by facilitating out of class experiences (Bradford et al., 2006-2007). Some features of Blackboard encourage student-centered approaches to learning. The virtual classroom create an environment that supports real-time synchronous discussions, providing an experience that parallels a social presence. (Malikowski et al., 2007, p. 159). Faculty and students are able to interact with each other, regardless of time and physical barriers; not all parties have to be physically available for learning to take place (Ballard et al., 2004). This therefore means that virtual classrooms are time effective for both faculty and students.

The major developments taking place in library and information centers today are the widespread availability and use of various kinds of electronic learning resources. Electronic learning materials have increasingly become the focus of research and development of any institution in the recent years (Maki, 2008). The commonly available electronic resources namely CDROMS, OPACs, web databases, Internet, and other networked information sources are competing with, and in some instances replacing the print-based information sources. Unlike traditional libraries, e-libraries are not limited by location or time. Libraries have changed with the emergence and application of information technology (Borgman, 2011). Libraries have assumed the role of educators—teaching users to find, evaluate and use information both in the library and over electronic networks (Krishnaveni & Meenakumari, 2010). As the use of e-library continues to soar, users are expected to develop information literacy.

ICT plays a vital role in supporting powerful, efficient management and administration in the education sector. Technology can be used right from student administration to various resource administration in an education institution (Maki, 2008). The integration of ICT for example internet, emails, chat and instant messaging programmes, discussion boards and news groups in institutional administration has opened new ventures for communicating. It is convenient; cheap and allows for administrators to share and exchange ideas instantly (Chinien, 2003). Horn and Siew (2011) noted that ICT tools such as Facility Management System, File Booking System, Building Control Management System and Resources
Tracking and Management System could help both staff and students to use university or polytechnic facilities conveniently.

Organizational performance has continually become important in modern day and especially in the field of management study (Nemati, Steiger et al. 2002). It was developed as a strategic orientation to overcome the external adaptation problems faced by firms, which have been looking for sustainable competitive advantage in global competition in the last thirty years. Different people have different understanding of organization performance, based on their involvement in assessment of the organization. For example, an outsider’s assessment of an organization’s performance can definitely not be the same as how an insider would understand it. The concept of performance is best defined upon understanding of its elements and characteristics to each area of responsibility. (King, 2005). Ability to quantify results is necessary to effectively report on an organization's performance level (Lynch 2011).

The definition of organization performance is the ability of an organization to have proper governance and have managers who are objective in achieving the goals of the organization and being persistent in achieving the mission and vision of the organization (Richard, 2013). It is measured by the organization’s financial performance, market performance and the shareholders performance (Jones & Charles, 2010). The stakeholders that are taken into account are internal (employees, executive officer, managers and board members) and external stakeholders who are other individuals who have some claim on the company, for example, customers and suppliers. Educational institutions have increasingly undertaken strategic planning to improve performance and operational efficiency (King, 2005).

Components of the educational strategic plan (mission, vision, objectives, strategies, goals, and initiatives) should be of high importance and properly communicated to stakeholders-administrators, faculty, employees, students, parents, and future employers (Beard & Humphrey, 2014). Iwiyi (2007) stated that ICT relates to the strategic planning process in a variety of ways. It may support the attainment of other objectives and goals by providing efficient and effective means of collecting, processing, and reporting performance data. The availability and utilization of ICT resources to enhance the students’ educational experience and expand access to programs could be an explicit institutional aim. ICT can help demonstrate fiscal responsibility, stewardship of resources, and compliance with laws and regulations (Kaptan, 2010). Thus, IT represents not only a desired resource, but also a tool
used to improve communication, to achieve and evaluate goals, to safeguard other resources, and to provide better services to constituents. This study attempts to measure performance based on student learning experience, research output and organization productivity.

USIU-Africa is a secular private institution of higher learning accredited by the Commission for University Education (CUE) in Kenya and the WASC Senior College and University Commission (WSCUC) in the United States of America. It was established in 1969 as the Nairobi Campus of United States International University (USIU), a San Diego-based institution. In 1999, the United States International University, Nairobi Campus, established itself as a separate university under its new name: USIU-Africa. The university is located in the Kasarani area, off Thika Road in the suburb of Kenya’s capital city of Nairobi. It is an independent, not-for-profit institution serving 6,512 students representing 69 nationalities. It offers 24 degree programs from undergraduate to doctoral level, all of which are accredited by the CUE and WSCUC.

The library and information center hosts 183,932 print volumes, 45,827 print periodicals, over 100,000 online journals, 264,378 e-books, 14,317 non-print media and 50 e-databases. The campus has an elaborate ICT infrastructure comprising of computer hardware, software and networking systems that support the institution’s digital repository as well as other business applications that support daily operations. The University has invested in state-of-the-art ICT infrastructure as part of its previous strategic plan to meet the needs of the USIU-Africa community. These ICT resources provide direct and indirect support of the University’s instruction, research and community service missions, administrative functions, student activities; and the free exchange of ideas within and outside the USIU-Africa community.

The university has also employed a number of professionals to manage these ICT investments. Blackboard e-learning application was implemented as part of the blended learning solution aimed at improving student learning experience. Most of the library systems have been digitized and the university now has a digital repository that should aid students and faculty to carry out proper research. The enterprise management systems have gone through an array of customizations aimed at improving workflow and general productivity of the workforce. However, no proper research has been carried out to find out the effectiveness of these strategies in improving the institution’s performance. It is
important to analyze the effects of these ICT strategies to determine whether they were justified and if there is need to possibly do more.

1.2 Statement of the Problem

In today’s world of global competition, providing quality service is a key for success, and many experts concur that the most powerful competitive trend currently shaping marketing and business strategy is service quality (Abdullah, 2011, p. 31). Educational administrators need to have basic information on students and teachers, institutional supplies, and how much is spent on various inputs, in order to make the most basic resource allocation decisions (Iwu & OIke, 2009). Institutions of higher learning are also focusing on ways to render high quality education to their students and have a better performance. Institutions of higher learning are facing new challenges in order to improve the quality of education. Macharia & Pelser (2012) observed that the emergence of new universities has created competition.

Most studies have explored the importance of ICT in education institutions but do not discourse how technology affects performance and how it would translate to competitive advantage. ICT aids in analyzing data quickly and accurately, through the use of information management systems and analytical software that help administrators draw patterns from the available data (Juma, Raihan, & Clement, 2016). Adebayo (2015) in his study on the impact of ICT in the administration of polytechnics suggested that administrators of education institutions should place greater emphasis on ICT in their respective institutions to foster capacity building of human resources, material resources and financial resources. According to Kitoto (2015) emphasized on competitive strategies embraced by universities in Kenya. The scholar explored the competitive strategies by Kenyan Universities have adopted and the challenges they have experienced in the implementation of those strategies. Mutua (2014) concentrated on the responses to changing environment by the public universities, among them, competition from other universities and middle level colleges. Kagwira (2014) on the other hand looked at the extent to which Kenyan universities exercise education marketing and the study discovered that it is proficient to different extent.

This study therefore aims to close the gap by looking at how information technology strategies aid institutions of higher learning. In the above studies, it is evident that the researchers have not really narrowed down to focus on the ICT strategies adopted by
universities despite their rapid growth in the past few years. In this study, the researcher concentrates on USIU-Africa and the ICT strategies it has adopted in its strategic plan, in order to survive in this era of great competition. The study was also explore the effects that these strategies have had on both the performance of the institution.

1.3 Purpose of the Study

The purpose of this study is to determine effects of Information Technology strategies on USIU-Africa’s organization performance.

1.4 Research Questions

The study was guided by the following research questions:

1.4.1 How does blackboard affect student learning efficiency at USIU-Africa?

1.4.2 How does library information systems affect academic research output at USIU-Africa?

1.4.3 How does enterprise systems integration affect productivity at USIU-Africa?

1.5 Significance of the Study

The study is of importance to the following stakeholders:

1.5.1 Academic Researchers Community

The study contributes to the body of knowledge of interest to both researchers and academicians who seek to explore or investigate the effects of information technology strategies on a firm’s performance. The research provides relevant information for future reference when one wants to carry out research in a related field.

1.5.2 Higher Education Regulators

As ICT adoption rises in Kenya, the study provides the government with more insight to reviewing ICT related policies in the Kenyan education industry. Institutions such as the Commission for University Education can use it as a benchmark to be adopted by all universities in the country.
1.5.3 USIU-Africa Management

This study is of significant value to USIU-Africa. The study offers valuable guidance in assessing the different ICT strategies at the institution’s disposal and ensure they only implement those that translate into improved organization performance. The study will assist management to prioritize resource allocation during budgeting and strategic planning. It will also assist in drawing up student recruitment and retention strategies that would ultimately ensure business continuity.

1.6 Scope of the Study

The study was limited to examining the effects of ICT strategies in institutions of higher learning in Kenya, with specific focus on USIU-Africa. The study population was be drawn from USIU-Africa employees consisting of senior managers, middle level managers and faculty. The study was conducted between January and September 2017.

1.7 Definition of Terms

1.7.1 Academic Research

Academic Research is the product of creative, cumulative and often long-term activity conducted by people with specialist knowledge about the theories, methods and information concerning their field of enquiry (Blake, 1993).

1.7.2 Blackboard

Blackboard is an online learning management system that facilitates learning and interaction through announcements, discussions, virtual classroom, chat and email (Bradford et al., 2006-2007).

1.7.3 Competitive Advantage

Competitive advantage is the properties of individual product markets, which gives the firm a strong competitive position (Ansoff, 1965).
1.7.4 Enterprise Systems

Enterprise systems are applications within a single organization that work together in order to simplify and automate business processes to the greatest extent possible (Woolf, 2015).

1.7.5 Information

Information is data that is accurate and timely, specific and organized for a purpose, presented within a context that gives it meaning and relevance, and can lead to an increase in understanding and decrease in uncertainty (Vigo, 2013).

1.7.6 Information System

An information system is any organized system for the collection, organization, storage and communication of information (Kroenke, 2015).

1.7.7 Information Technology

Information Technology is computer based technology, which is being used to store, retrieves, manipulate, and process the distribution of data (Fong, 2015).

1.7.8 Organization

An organization is an entity comprising multiple people, such as an institution or an association that has a collective goal and linked to an external environment (Handy, 2005).

1.7.9 Organization Performance

Organization performance is the actual output or results of an organization as measured against its goals and objectives (Richard et al., 2009).

1.7.10 Productivity

Productivity is an average measure of the efficiency of production. It can be expressed as the ratio of output to inputs used in business processes (Saari, 2011).
1.7.11 Strategy

Strategy is a high-level plan to achieve one or more goals under conditions of uncertainty (Lawrence, 2013).

1.7.12 Student Learning Experience

Student learning experience is the sum of student feelings and attitudes that results from aggregating all the benefits that a student hopes to receive from an education institution. The degree of the satisfaction perceived by the students is based on how favorably they think that the learning program meets their expectations (Lo, 2010).

1.7.13 University

A university is an institution of higher education and research, which grants academic degrees in various subjects. Universities typically provide undergraduate education and postgraduate education (Watson, 2005).

1.7.14 USIU-Africa

USIU-Africa is a private university in Kenya, dually accredited by WASC Senior College and University Commission (WSCUC) in the United States of America and the Commission for University Education (CUE) in Kenya.

1.8 Chapter Summary

The current study is an attempt to analyze the effects of information technology strategies on organization performance, specifically at USIU-Africa; therefore understand which strategies have been used to support and enhance the university’s core strategic objectives of teaching, research, and administration. Through the analysis of the different information technology strategies, it was hoped that management of the institution would be able to understand the impact of the current information technology investments and provide a basis for justification for future strategic investments.

The next chapter covers literature review in relation to comparative analysis on the effects of information technology strategies used by different organizations on performance. Chapter three covers the research methodology used in conducting this study, while chapter
four presents the results and findings of this study, and finally chapter five gives the discussions, conclusions and recommendations of the study.
CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Introduction

This chapter surveyed and reviewed the literature related to the topic: effects of information technology strategies on organization performance. It focused on the various information technology strategies that are available to an institution and their effects on performance. The chapter seeks to give information in line with the research questions: How does Blackboard E-learning affect research output at USIU-Africa? How does library information systems affect academic excellence output at USIU-Africa? How does enterprise systems integration affect productivity at USIU-Africa?

2.2 Blackboard E-learning and Learning Efficiency

Learning management systems such as Blackboard (Blackboard LearnTM, 2009) are at the forefront of recent technological advances in Higher Education. It has been adopted by the universities as an online learning management system for both on-campus and distance learners. With such rapid growth in the use of these systems, it is important to understand how these technologies are being used and how they impact on users. Apart from providing resources for distance learners, learning management systems may add a virtual dimension to traditional campus-based study (Coates, 2007) and also facilitate hybrid or blended studies which combine online and on-campus components (Malikowski, Thompson, & Theis, 2007). The line between distance learning and campus-based experience is almost non-existent now, thanks to the adoption of learning management systems that have replaced these traditional systems with hybrid modes or ‘distributed learning’ in which technology-mediated instruction is the norm (Masi & Winer, 2005).

New technologies have the potential to change the traditional pedagogical practices (DeNeui & Dodge, 2006). They offer a highly interactive medium of learning that can be customized to meet the individual needs of students (Levine & Sun, 2003). These systems may influence the selection and development of online resources and affect traditional teaching practices, while also introducing a new layer of complexities into the management of teaching programs (Coates, 2007). The trend, it appears, is that currently, most of these technologies appear to focus more on the delivery of information rather than on improving
the teaching itself (Davis, Lennox, Walker, & Walsh, 2007; Herrington, Reeves, & Oliver, 2005; Malikowski, Thompson, & Theis, 2007; Norton & Hathaway, 2008). Under this kind of arrangement, faculty have the responsibility of generating content that they deem appropriate, collect necessary resources, then present them into weekly modules or tasks for student consumption (Norton & Hathaway, 2008).

The difficulty associated with learning how to use learning management systems such as Blackboard has been identified as a key limitation of these systems (Bradford, Porciello, Balkon, & Backus, 2006-2007). Teachers do not have the motivation or time to become expert users of online systems thus limiting their use of innovative pedagogies. According to Christie and Garrote Jurado (2009), the barriers to the use of innovations are understandable and teachers need to be convinced of the value of learning management systems if they are to realise their potential. Rogers (2003) asserts that adopters of new technologies need to move through five stages before the innovations become a routine part of the person’s experience. As the users of technological innovations move towards sustained implementation, there appears to be a shift away from task-related concerns related to technical issues towards more pedagogical concerns. It is at this point that users focus further on thinking about more creative ways to use the innovation to improve teaching and learning (West, Waddoups, & Graham, 2007).

In terms of availability, users can access Blackboard via the internet at anytime and anywhere (DeNeui & Dodge, 2006), so students can view and download course materials and other information as well as submitting assignments online as soon as they are complete. Previous research (e.g., Heirdsfield, Davis, Lennox, Walker, & Zhang, 2007) indicates that it is the increased availability that most appeals to students. While students may appreciate the convenience, students are generally less satisfied with online learning compared to traditional face-to-face learning (Pillay, Irving, & Tones, 2007). Students cite reasons such as the lack of a learning atmosphere in Blackboard, reduced opportunities for contact or discussions with other students and teachers, delayed feedback from instructors and a less efficient learning process with students required to dedicate more time to learning the content as the basis for their dissatisfaction (Liaw, 2008; Yang & Cornelius, 2004).

It is ironic that technology may provide the means for supporting communication between geographically distant learners but it also has the potential to alienate and isolate some users who may feel disenfranchised or marginalized by the use of technology (Daviault &
However, the social interactions provided through the use of tools that are available in Blackboard may help to reduce the sense of isolation experienced by students who are geographically removed from the site of study. In particular, interaction with an instructor and a perceived “teaching presence” is an important factor in successful online learning (Jiang, Parent & Eastmond, 2006; Shea, 2006). While there is little evidence available about how these interactions affect learning goals, the resultant outcome could be related to reductions in attrition as social interaction is strongly linked to online learning enjoyment and effectiveness of learning online (Muilenburg & Berge, 2005; Northup, 2002). McLoughlin (2000) highlights the need to provide culturally inclusive online environments that recognize the diversity in students’ social and cultural backgrounds.

2.2.1 Blackboard Content

ICT such as videos, television and multimedia computer software that combine text, sound, and colorful, moving images can be used to provide challenging and authentic content that will engage the student in the learning process and collaboration. (Achimugu, Oluwagbemi, & Oluwaranti 2011). Cohen (2013) argues that because the lecture method is largely a one-way technology, it is impossible to employ a variety of sound pedagogical techniques. Most lecture courses are notoriously ineffective in engaging students. At the same time, students with strong skills who would benefit from having more opportunity to explore the material fully or who could accelerate are locked into a fixed timeframe for completing the course (Tangen, 2015).

Access to support materials and learning concepts are essential needs of students (Bocchi et al., 2004). Web-based learning systems offer learner-centered learning and personalization (Roffe, 2002) by allowing integration of various types of learning content according to the learners’ need, and so they are compatible with the learners’ preferred learning styles (Little, 2001). Zhang et al. (2006) comments that e-learning through interactive video facility allows student to watch any activities conducted inside the classroom and listen to instructors several times if needed. Shopova (2012) says, “E-Learning became an important instrument in the new Higher Educational Environment in the digital age which creates student-centered learning and educational practice, offering new more flexible learning methods”. Saadé and Bahli (2005) proposed that, when students’ involvement with an e-learning system to complete a task is so intense that
they “lose track of time” (temporal dissociation), they tend to believe it took them less time to finish the task than it actually did.

Gupta and Koo (2010) wrote, “Blackboard can be used as an effective tool to support classroom material, introduce new ways of learning, and help enhance study skills.” Blackboard integrates and provides easy access and usability of the instructional management feature because it provides the framework for controlling every aspects of the e-learning administration of the faculty members from the registration to the completion of a member (Zakaria, Jamal, Bisht & Koppel, 2013). Blackboard includes customized course menus that consist of multiple contents areas that enable the user to find it easy to organize content (Sahasrabudhe & Lockley, 2014). According to (Badawood & Steenkamp, 2013), the main usability problem with Blackboard is the general structure and interface design.

2.2.2 Teaching Collaboration

Research has found that the possibility that students may increase their learning through collaboration with fellow learners has been advocated as a strength of online management education (Alavi, 1994; Bailey & Cotlar, 1994; Leidner & Jarvenpaa, 1995). Collaborative learning support systems, institution resources management systems, test-authoring systems and virtual classroom management systems are widely used in modern learning (Meiselwitz & Sadera, 2008). Four types of interactivity may be evident using learning management systems such as Blackboard: learner-content, learner-instructor, learner-learner, and learner-interface (Ellis, Ginns, & Piggott, 2009).

E-learning can provide opportunities for interaction between learners through discussion forums and through eliminating the barriers that might hinder participation, such as fear of talking to others in a physical setting (Hameed, Badii & Cullen, 2008). Some forms of LMS tools such as Chat, Discussions and Wikis has proved to be more problematic for the users (Kim & Seo, 2009). Collaborative learning can occur peer-to-peer or in larger groups. Peer learning, or peer instruction, is a type of collaborative learning that involves students working in pairs or small groups to discuss concepts, or find solutions to problems (Freire, 2011). Good pedagogical practice enhanced by technology supports shifts in the nature of the teaching-learning enterprise, making it more active and learner-centered. Butcher (2013). Alternatives that improve quality involve, among other things, shifting repetitive tasks from instructors to IT-based resources and developing IT-based interactive materials.
Blackboard features that facilitate interactions include announcements, discussions, virtual classroom, chat and email (Bradford et al., 2006-2007). The announcements section on Blackboard homepages provides a simple, efficient way of relaying messages on to all students in the cohort (Ballard et al., 2004). Some features of Blackboard encourage student-centred approaches to learning. However, the lack of immediacy in asynchronous discussions makes them unpopular for students who may want help instantaneously (Gorski, Caspi & Trumper, 2004). Synchronous discussions on the other hand, as evident in the virtual classroom facility, are in real time and have a stronger sense of social presence (Malikowski et al., 2007, p. 159). These virtual interactions also allow students and instructors to talk and work with each other without having to schedule a suitable time for all parties to meet (Ballard et al., 2004) so are useful for time effectiveness for staff and students alike.

2.2.3 Assessment through Blackboard

Assessment is a key part of life in universities for both staff and students. A variety of forms of assessment are regularly used by staff to ensure that students have met the learning outcomes of their courses, as well as to provide the students with information about their progress in the subject studied (Knight, 1995). The role and nature of assessment is a highly debated area within the sector, with much emphasis being placed on the importance of assessment for learning as opposed to the more traditional assessment of learning (Knight, 1995). One key element of this is feedback – what do students learn from their work, beyond the knowledge of whether it met a certain standard? The importance of feedback is not generally disputed, but much has been written on the nature, timing, delivery and use of feedback (Butler & Roediger, 2008, Boud & Falchikov, 2006, Gikandi et al., 2011).

The traditional classification of assessment tends to divide students’ work into two categories – formative and summative. Formative assessment would result in a larger amount of feedback. Summative assessment would be considered as the ‘final exam’ where students receive little in the way of feedback beyond a mark. Koeber (2005) observed that Students’ evaluations were considerably more favourable in the group using Blackboard software; all measured dimensions of perceived teaching effectiveness yielded statistically significant increases, with substantial increases in perceptions of instructor rapport and grading. Campbell et al (2008) found that “rather than being disadvantaged, participants in online discussions obtained higher marks generally in their assignments than those taking
face-to-face seminars, suggesting that the online route was associated with higher achievement.” Fritz (2011) also emphasized the importance of interaction in the evaluation process, which would allow the learner to check and monitor their academic activities and improve student-learning performance.

In contrast, simply delivering a grade without the ability to interact with the student would fail to enhance student participation, as well as their learning experience. Course evaluation serves a very important function in education because it helps instructors understand if they need to modify the course content, as well as their teaching approaches to improve the overall learning and teaching experience (Sims, Dobbs & Hand, 2002). However, when students have questions or concerns, lack of immediate clarification can slow down the leaning process (Belcheir & Cucek, 2001). Thus, it appears that student dissatisfaction with online learning experiences stems from pedagogical issues rather than logistical concerns (Summers, Waigandt, & Whittaker, 2005).

2.3 Library Information Systems and Research Output

Libraries around the globe have in the past few decades attempted to put heads together to form of library consortia, collaborating and co-operating through their inter library loan system on a voluntary basis to facilitate resource sharing among member libraries (Aina, 2003). With advances in information and communication technology and collaboration of libraries through inter–library loan system as well as formation of consortium has become a global reality. The application of ICT in libraries has broadened the scope of librarianship and conferred new roles on libraries. Emojorho (2011) noted that the accelerated adoption and use of information and communication technology (ICT) has resulted in the globalization of information and knowledge resource. In a consortium, the member libraries are linked together through electronic information network. This reduces the costs of acquisition of information materials and still allows users of individual library to have access to a great number of information materials that ordinarily one library may not possess.

Everyday new technological progresses influences the way information is handled in Academic libraries and information centers. The benefit of new technologies is felt by libraries in every aspect. Communication technology, Computing technology and mass storage technology are some of the areas of continuous development that reshape the way
that libraries access, retrieve, store, manipulate and disseminate information to users. Technology is changing expectations about how to find, use and share information across the globe and libraries are changing along the way. Information and Communication Technology (ICT) according to Krubu & Osawaru (2010) has brought unprecedented changes and transformation to academic library and information services. Conventional library and information service such as OPAC, current awareness services, users services, reference services, bibliographic services, document delivery, interlibrary loan, customer relations and audiovisual services can be provided more efficiently and effectively using ICT.

The benefits of ICT in a library system are self-evident and overwhelming. Okolo (2002) pointed out that the library needs ICT in order to give efficient services to its users. Not only is the speed of its operation elevated, the degree of its output is equally large. When ICT is applied in the library, there is economy of labour and operating cost. The accelerated adoption and use of ICT means that bibliographic databases, full-text documents, and digital library collections are always available to users (Chisenga, 2004). In a bid to globalize academic libraries and reap the benefits ICT offers, university and other tertiary institutions register and pay for online databases, which afford researchers access to varied information resources across the globe. According to Okolo (2002), the potent force driving the world toward a converging commonality is information and communication technology (ICT).

2.3.1 Research Ranking

Citation shows that how many times other articles have used an article. Citations are applied to measure the importance of information contained in an article (Fooladi et al., 2013). “The more often a paper become cited the greater its influence on the field” is a basic assumption of citation analysis (Martínez et al., 2013; Garfield & Merton, 1979). Direct citation remains a main indicator of the significance of a research output rather than alternative metrics (Shotton, 2013; Priem, 2013). In addition, the number of citations has over 20% share in different university ranking systems (Usher & Savino, 2007; Taylor & Braddock, 2007). Therefore, most of the universities encourage their researchers to publish high quality papers that can receive high citations and will reach the widest possible audience (Ale-Ebrahim et al., 2013).
The number of citations will be limited to the availability of the published article on the web (Lawrence, 2001). The literature has shown increased visibility by making research outputs available through open access repositories, results wider access and higher citation impact (Antelman, 2004; Hardy et al., 2005; Amancio et al., 2012; Ertürk & Şengül, 2012; Dalton, 2013). A paper has greater chance of becoming highly cited whenever has more visibility (Egghe et al., 2013). Antelman (2004) approved across mathematics, electrical and electronic engineering, political science, and philosophy disciplines, freely available articles have a greater research impact than articles, which are not open-access to the users.

As a result, most authors are motivated to publish in an open-access journal for increasing visibility and subsequently a citation advantage (Jayaprakash et al., 2013). Publishing in an open-access journal has been generally associated with a 10% boost in citations (McCabe & Snyder, 2013). Moreover, Lawrence (2001) investigated the impact of free online availability of article. However, the citation will be increased due to the quality and visibility of the paper (Kurtz et al., 2005). Visibility can ultimately be translated to increased opportunity for attracting citations (Mirjana et al., 2013). Researchers have spent plenty of time and effort during writing up their research for publication.

However, publishing a paper in the journal, which has a high impact factor, is not guaranteed by analyzing citation rate. There is a clear correlation between the number of times an article is cited and the probability that the article is online (Lawrence, 2001). Author self-archiving is promising to increase visibility of the articles and clearly perceived benefits in sharing scholarly output. Self-archiving is defined as storing the scientific research outputs in researchers’ own web pages/sites, organizational web sites or institutional repositories (Ertürk & Şengül, 2012).

### 2.3.2 Accessing Electronic Journals on Online Public Access Catalogs

Online Public Access Catalogs (OPACS) are platforms that enable users to quickly, and easily locate scholarly information in an integrated environment (Allison, 2010). Research suggests that users favor internet search engines over the traditional library catalogue because Internet search engines provide relevance ranked results and have aesthetically pleasing interfaces (Lewis, 2008). They also provide access to a variety of information resource types including websites, articles and online books. In contrast, the traditional library system requires the user to search through multiple databases and repositories to
locate different materials (Sadeh, 2008). Library OPACs will increasingly need to imitate Internet services and enable users quickly locate scholarly information in an integrated environment (Allison, 2010; Yang & Wagner, 2010; Lewis, 2008; Sadeh, 2007).

Chand, Prakash, Satyabati, and Chauhan (2007) found that the escalating price of electronic journals, indexing and abstracting databases along with traditionally published print subscriptions has forced library community to explore alternative means of subscription. Anyasi, et al (2012) pointed out that the internet and its technology continues to have a profound effect in promoting the sharing of information especially in academic world, making possible rapid transactions among businesses and supporting global collaboration among individuals and organizations. When ICT is implemented in the library, there is economy of labor and operating cost. The accelerated adoption and use of ICT means that bibliographic databases, full-text documents, and digital library collections are always available to users (Chisenga, 2004).

User perception towards integrated resources within OPACS is also an area that needs interrogation. Some academic libraries have stated that being able to provide integrated content will go a long way to promote the smaller local electronic collections, which commercial search engine may not be able to retrieve (Allison, 2010). The World Wide Web has become an outstanding tool for the collection and dissemination of scholarly information (Más-Bleda & Aguillo, 2013). The majority of freely available articles are found on author personal website rather than in a repository or in an open-access journal (Antelman, 2004). Alternatively, institutional repositories make articles visible, increase the chances for use by other scholars, and exchange ideas among similar disciplines (Ngah, 2010).

2.3.3 Visibility of Scholarly Work on Digital Repository

According to Wisser (2016), an academic institution is any degree-granting institution that dedicated to research and education. Through research, academic institutions generate a lot of content locally, commonly referred to as local content. Uzoegbu (2012) defines local content as a way of making the relevant locally generated knowledge and experience of a community visible. The content may include staff papers, theses and dissertations, journal articles, conference proceedings, technical papers (Walters, 2007), and other types of intellectual output. (Yang 2008) observed that it is necessary that higher education
institutions themselves search for ways to effectively train students in the required skills, and to guarantee that the students who graduate will be creative, competitive and critical thinkers.

Lack of visibility caused that some senior scholars in some African universities may not have a significant citation impact (Rotich & Musakali, 2013). Writing an article for online distribution needs to cover some techniques from writing a search engine-friendly title and abstract to maximize visibility once it is published (Norman, 2012). Depositing the paper in the institutional repository is another way of increasing paper’s visibility. Commonly cited benefits of using an institutional repository are to increase the visibility and citation impact of the institution’s scholarship (Tate, 2010). By making a few adjustments in how and where to publish and present the research findings, researchers can become more productive, better known for their research, and better connected with the members of your professional community (Pfirman et al., 2007).

2.4 Enterprise System Integration and Employee Productivity

Enterprise system integration involves extensive business processes redesign and the deployment of new software to support the new business processes (Morris & Venkatesh 2010; Robey et al. 2002). It refers to a range of concepts and approaches including the definition of a global architecture of the system, the consistency of system-wide decision making (coherences between local and global objectives), the notion of the process which models activity flow beyond the borders of functions, the dynamic allocation of resources as well as the consistency of data (Vernadat, 2002). Understanding the factors that can improve job performance in the early stages of an ES implementation, when productivity is typically depressed (Markus & Tanis 2000; Ward et al. 2005), enhances our ability to foster the long-term success of ES implementations.

Studies suggests that innovation envisaged in organizational changes raises economic performance of firms through their mutually reinforcing relationship with technology. IT for instance enables firms to bring in significant organizational changes in the areas of re-engineering, decentralization, flexible work arrangements and outsourcing (OECD, 2002). Baldwin and Sabourin (2003) observed that plants that were using new computer-driven advanced technologies experienced greater growth in labor productivity and market share. In educational institutional setting, administration has been extended as a service activity
through which the fundamental objectives of the institutional process may be optimized more efficiently when allocating human and material resources as well as making the best use of existing resources (Opara & Onyije, 2014).

Systems that do not provide adequate functionality or place burdensome demands on users cause misalignment (Strong & Volkoff, 2010). This could trigger new rounds of adaptation that could either bring about alignment and the resulting integration and control (Volkoff et al. 2007, Lyytinen et al. 2009, Goh et al. 2011) or result in “drift” away from the integration and control that the systems were implemented to achieve (Ciborra, 2000). ICT can help in reducing the workload of the administrators and staff especially in analyzing information like analyzing student academic performance hence saving time (Oboegbulem & Ugwu, 2013). In all organizational models, student support services such as admissions, advising, registration, and placement will focus more on helping the university and its programs reach out to serve students where they are rather than centralizing services in a single location (Brauer & Leischning, 2016).

Most of the literature on IT and organizational co-investment has focused on general-purpose information technologies (Bresnahan & Trajtenberg, 1995). Given the general-purpose flexibility of IT, the predominant approach to measuring IT investment has simply been to count the number of IT employees or to estimate the total dollars spent on hardware purchases. However, prior research has shown that investments in different types of IT can have orthogonal and at times competing performance implications (Aral & Weill 2007). While aggregate measures of information processing capabilities inside firms are a good first step for understanding how IT-intensive firms experience greater productivity, a more precise view of IT and organizational complementarity is possible with explorations of complementarities between particular technologies and the specific systems of practices they are intended to support (Aral & Weill 2007, Bartel, Ichniowski, & Shaw, 2007).

The greatest benefits from ICT appear to be realized when ICT investment is combined with other organizational assets, such as new strategies, new business processes, new organizational structures and better worker skills Sabourin (2003). Empirical evidence suggests that organizational changes may improve economic performance of firms through their mutually reinforcing relationship with ICT. OECD (2002) argues that ICT is key to facilitating new organizational approaches, from lean production to teamwork to customer relations. ICT enable firms to introduce significant organizational changes in the areas of
re-engineering, decentralization, flexible work arrangements and outsourcing. It allows firms to produce with greater flexibility and shortened product cycles to satisfy shifting consumer preferences. In fact, organizational innovation and ICT may be regarded as complementary factors. To be successful, firms typically need to adopt ICT as part of a “system” or “cluster” of mutually reinforcing organizational approaches (Milgrom & Roberts, 1990).

Substantial variation exists in the returns to IT across firms (Brynjolfsson & Hitt 1995). A leading explanation for this variation is that firms with higher returns also adopt complementary organizational practices that produce productivity and performance premiums (Bresnahan, Brynjolfsson & Hitt, 2002; Caroli and Van Reenen 2002; Aral & Weill 2007; Bloom, Sadun & Van Reenen 2008). For instance, financial markets disproportionately reward firms that invest in IT when they have also made appropriate organizational investments (Brynjolfsson, Hitt, & Yang, 2002). With a highly skilled workforce that can efficiently use information technology, firms can achieve higher productivity through increased efficiency and customization as line workers are empowered with more decision rights (Bresnahan, Brynjolfsson & Hitt 2002; Caroli & Van Reenen 2002).

2.4.1 Integrated Systems and Financial Performance

Financial impact on the organization as a whole has frequently been measured using variables representing market performance, such as market share and market value of the firm, among others (Dehning & Richardson 2002; Dedrick et al., 2003; Liang et al., 2010). Gordon (2010) observed that the ICT revolution was increasingly burdened by diminishing returns. Coordination costs of the firm are reduced by IT because of lower procurement and inventory costs and closer coordination with suppliers (Tachiki et al., 2004; OECD, 2003, 2004). ICT lowers transaction costs and costs due to coordination, which maximizes the value of the transactions (OECD, 2004). The use of e-mail, e-commerce, and social media network have significantly cut down on the physical transportation involved in sending mail, banking, advertising and buying goods (Manochehri, Al-Esmail & Ashrafi, 2012)

In order for IT to be properly utilized, it must be used in collaboration with complementary resources such as organizational structure, human resources or organizational resources
The complexity of institutional system requires more demand from the institutional administrators in processing of relevant data in an attempt to provide information for the governing bodies, institution and other institutional agencies for decision making towards quality assurance and transformational development. Administrators need to have basic information on students, teachers, institutional suppliers, and expenditure on various inputs, in order to make the most basic resource allocation decisions (Iwu & OIke, 2009). According to Adesida (2001), ICT facilitates more than just information exchange; It deepens the process of creating new modes of sharing ideas, and reduces the costs of collecting and analyzing information. Use of ICT will help in analyzing the available data quickly and accurately with the help of organized data.

ICT has been involved in the following: client behavior knowledge, customer satisfaction measures, distribution channel management and revenue management (Zhilin Yang, Robin T. Peterson, & Shaohan Cai, 2003). ICT enables the possibility of getting client opinions through email, cell-phone apps, interactive voice-response systems, and partner websites. Affiliative marketing involves activities directed to obtaining successful relational exchanges (Morgan & Hunt, 1994). Its triumph is reliant on acquiring customer information to be used for developing highly tailored packages (Sigala, 2005). Customer relationship management (CRM) endeavors to gather and store client related data, share it all the way through the whole organization, and then use it at all on organizational levels for creating distinctive experiences (Sigala, 2005). IT plays a critical role in revenue management, which endeavors to design distinct service packages using appropriate combinations of attributes, such as price, purchase restrictions, amenities, and channels of distribution.

2.4.2 Information Systems and Operation Efficiency

ICT are facilities, tools or resources that could be used to process, store, preserve, access, retrieve, and disseminate information with ease (Opara & Onyije, 2014). ICT increases productivity and operational efficiency in specific business processes, not only by reducing costs but also by impacting on intangible assets such as quality improvement in design processes or life-cycle enhancement in inventory management systems (Brynjolfsson et al., 2002; Devaraj & Kohli, 2003; Melville et al., 2004). Odufuwa (2006) asserts that advances in ICT have progressively reduced the cost of managing information. It is enabling individuals and organizations to undertake information related tasks much
more efficiently. Such advances have equally introduced innovations in products, processes and organization structures.

Consoli (2012) noted that for best performances it is important to align ICT investments with internal capabilities and organizational processes. ICT in learning institutions assists administrators in managing student admission, student records and examination records, the monitoring and evaluation of staff, planning for school activities, curriculum development, financial management and information dissemination, promotes communication between school units, parents, and principal administration (Oboegbulem & Ugwu, 2013). ICT technology can process voluminous records quickly, meticulously and impeccably; it can also generate reliable and consistent records, which are searchable, and quickly retrievable. Technology saves human resources for data entry and servicing student admission and registration (Clarke-okah et al., 2009). With advanced scanning technology, completed application forms can be read into the databases in a matter of seconds.

IT applications help organizations to deliver services quicker (Bilgihan, Okumus, Nusair, & Kwun, 2011). That which is termed as tangible relays the physical evidence of the facility; which, in the event of IT, can be influenced by updated technologies (Schmidt, Cantallops, & dos Santos, 2008). Valence denotes whether, at their stay’s end, customers believe that the service outcome is good or bad; an instance of this may be the situation of unrestricted or unrestricted Wi-Fi (Santiago & Jacques, 2016). Concerning the second services’ type, penetration of IT has allowed universities to provide seamless business processes. There are two major results of this: first, reducing turn-around-time (Kokkinou & Cranage, 2013), and second, shunning circumstances characterized by a possibly negative rapport experience (Giebelhausen, Robinson, Sirianni, & Brady, 2014).

2.4.3 Information Systems and Quality of Work

ICT enhances coordination of activities by improving information systems and internal and external communication (Brynjolfsson & Hitt, 2000; Brynjolfsson et al., 2002). These technologies enable a more efficient use of information between workers, thereby increasing their quality of work. Ollo-Lopez and Aramendia-Muneta (2012) argued that ICT adoption seems to have a positive effect on productivity, directly as well as indirectly, depending on the sectors and to have great potential to support a sustainable development.
(Consoli, 2012; Bayo-Moriones, Billon & Lera-Lopez, 2013) stated that it is important to keep in mind that organizations adopting ICT have to adjust their structure, make internal changes such as personnel training, and reorganize them.

Firms with greater use of ICT and the use of teams, decentralized decision-making, and wider breadth of job responsibilities have disproportionately higher market valuations (Brynjolfsson et al. 2002). However, synergies between ICT and other organizational practices do not always exist. For example, in a study of the impact of the use of computers, TQM, profit sharing, and employee participation on labor productivity, Black and Lynch (2001) find synergies among various workplace practices, but no consistent evidence of synergies with the use of computers. According to (Krishnaveni & Meenakumari, 2010), using ICT in higher education administration is fundamentally about harnessing technology for better planning, setting standards, effecting change and monitoring results of the core functions of universities. Educational administrators need to have basic information on students, teachers and suppliers. They also and how much the system is spending on various inputs, in order to make the most basic resource allocation decisions (Iwu & Olke, 2009).

Staff administrative support service is achievable through effective ICT integration. According to Horn and Siew (2011), due to the distinct nature of polytechnic system, administration support requires ICT tools embedded in them special features meant to take care of the management of training facilities, tools and equipment both in hard and soft copies. Horn and Siew (2011) note that ICT tools such as Facility Management System (FMS), File Booking System (FBS), Building Control Management System (BCMS) and Resources Tracking and Management System (RTMS) could help both staff and students to use university facilities efficiently. ICT provides a platform to enroll, pay fees and complete all administrative procedures, regular contact and timely response and feedback from instructions, a variety of methods to communicate, and online assessments (Wonacott, 2002).

2.5 Chapter Summary
This chapter presented a comprehensive review of available literature relating to various factors that have been researched in regards to the effects of information technology strategies on organization performance. Most studies have indicated that Information Technology plays a vital role in supporting powerful, efficient management and administration in education sector. The literature review enables an informed and more
focused study of the effects of information technology strategies. Chapter three covers the research design and methodology which highlights the design and methodological issues that were adopted in this study.
CHAPTER THREE

3.0 RESEARCH METHODOLOGY

3.1 Introduction
This chapter describes the research methodology, approaches and design methods that have been chosen for the study. It discusses the population of the study, sample and sampling procedures; methods for data collection, research instruments as well as data analysis and data presentation methods to be used in the study. Further, procedures to be used for testing the research instrument reliability and validity are discussed. For each item chosen, a discussion of the rationale is done to explain the reason behind those actions and making specific design choices.

3.2 Research Design
The research design is defined as a blueprint for a researcher to get information, measure results and analyze data from respondents (Lewis, 2015). The study considered quantitative methods. Descriptive statistics features predominantly in the collection and analysis of data. Hackman and Oldham (2004) states that the use of both quantitative and qualitative techniques enriches any study and is important. Descriptive statistics addresses the research questions through empirical assessments that involve numerical measurements and statistical analysis. The variables have been identified in the research topic, which has organization performance as the dependent variable and IT strategies as independent variables. The study sets out to establish the relationship between the chosen variables and to what extent each variable affects the performance of United States International University-Africa.

3.3 Population and Sampling Design

3.3.1 Population
A population refers to an entire group of individuals, events or objects having common observable characteristics (Mugenda & Mugenda, 2003). Target population is defined as a computed set of individuals, cases or objects with some common observable characteristics of a particular nature distinct from other population. According to Ngechu (2004), a population is a well-defined or set of people, services, elements, and events, group of things or households that are being investigated. This definition ensures that population of interest is homogeneous.
3.3.2 Sampling Design

Sampling is the procedure a researcher uses to gather people, places or things to study, (Kombo & Tromp, 2006). A sample is a small group obtained from accessible population. It is the process of selecting a number of individuals or objects from a population such that the selected group contains elements representative of characteristics found in the entire group, (Oroto & Kombo, 2002). According to Kotler (2001), large samples give more reliable results than small samples. The study sampled 35% of the target population. For descriptive studies, the sample size should be at least 30% of the total population (Mugenda & Mugenda, 2008). The study obtained a sample of managers, faculty and staff of USIU-Africa to represent the population.

3.3.2.1 Sampling Frame

Saunders, Lewis and Thornhill (2009) said that in a probability sample will be that list of all cases from which a sample can be obtained. It is a list of target population from which the sample is selected which consists of a finite population for descriptive survey designs (Lavrakas, 2008). The term sampling frame can also be defined as a list that contains the names of all elements in the universe (Mugenda & Mugenda, 2003). In this study, the sampling frame was a list of all staff members in USIU-Africa.

3.3.2.2 Sampling Technique

Sampling technique refers to the part of the research plan that indicates how cases are to be selected for analysis. Collins and Hussey (2006) defines a sampling technique as the method of selecting elements from the population that represents the population. The sampling technique chosen for this study is stratified random sampling technique, which involves including elements from mutually exclusive sub populations or strata. It involves generating data for comparison and analysis across the various strata in the sampling frame. Stratified random sampling is the subdivision of the population into mutually exclusive sub populations into significant and relevant categories based on attributes that are distinct to the population elements in that population (Saunders et al., 2009). Cooper et al (2000) also defined stratified random sampling as the segregation of a population into mutually exclusive categories called strata, which have matching characteristics that differentiate them from other segments within the same population.
The stratification of this study was done by categorizing senior management who have a better view of the institution’s strategic plan, middle level managers and support staff, who have a better view of the effectiveness of business strategies based on customer feedback and faculty as the pedagogical custodians who perform the core functions of an educational institution. This sampling technique was chosen as it provides adequate data for analyzing various sub populations increases the samples statistical efficiency and representation and helps in the application of different research methods and procedures to be used on different strata.

3.3.2.3 Sample Size

According to Collin and Hussey (2009), sample size is the number of observations that constitute the statistical sample. Having considered the nature of this study, its homogeneity and experiences from other researchers, the study used a sample of 137 respondents, approximately 35% of the target population. For descriptive studies, the sample size should be at least 30% of the total population (Mugenda & Mugenda, 2008). Lavrakas (2010) also stated that this percentage allows the researcher to collect data from the respondents. The distribution of the sample size is shown below.

Table 3.1 Sample Size

<table>
<thead>
<tr>
<th>Category</th>
<th>Population</th>
<th>Sample=Population 35%</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>DVCs and Directors</td>
<td>6</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Senior Managers</td>
<td>11</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Deans</td>
<td>4</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Academic program Directors</td>
<td>10</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Middle Level Managers</td>
<td>11</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Faculty</td>
<td>150</td>
<td>53</td>
<td>38</td>
</tr>
<tr>
<td>Support Staff</td>
<td>200</td>
<td>70</td>
<td>51</td>
</tr>
<tr>
<td>Total</td>
<td>392</td>
<td>137</td>
<td>100</td>
</tr>
</tbody>
</table>

3.4 Data Collection Methods

Data collection refers to the process of gathering and measuring information on targeted variables in an established systematic fashion, which then enables one to answer relevant research questions and evaluate outcomes. Data is details presented by respondents to a study in a research environment to help authenticate the relationship between the research variables in a study (Cooper et al, 2000). Data collection is the process of gathering together
relevant data to direct the process of answering the study’s research questions. Primary data collection method was used in this study. A structured questionnaire was formulated using the research questions in the study and was self-administered and sent to USIU-Africa constituents through email and drop and pick hard copies method. In a bid to increase the response rate, personal visits, email reminders and phone calls were used for follow up.

For an effective data collection, the questionnaire was designed with four sections, first section being for background information and the other three sections are covering the three research questions. Both closed and open-ended questions were used and a five point likert scale style ranging from strongly agree and strongly disagree applied. The likert scale is designed with the intention to arouse respondent’s interest in the study; closed ended questions prepare and stimulate the respondent’s confidence levels in the study and open ended questions provide freedom for the respondent to articulate their honest and true opinion.

3.5 Research Procedures

A research procedure is a detailed description of the steps taken in the conduct of research provided for the purposes of replicability. The questionnaire was pre-tested with 10 respondents who were briefed on the objective of pre-testing which includes checking possible mistakes, ability of the questionnaire to lead the respondents in providing the required feedback, ease of understanding and the time taken to complete the questionnaire. Findings from the pre-testing were used to revise the questionnaire to improve on its quality and efficiency.

During the actual data collection, the refined questionnaire was administered to the target sample using email and drop-and-pick methods depending on the respondent’s preferences. Quality control was put in place to ensure response and data accuracy and assure the respondents of confidentiality and anonymity. To improve response rate, there was intensive follow up to meet deadlines, and the questionnaire was short and precise.

3.6 Data Analysis Methods

Nabintu (2013), argues that data analysis could mean a process of inspecting, then cleaning, followed by transforming and finally modeling of data with the goal of discovering useful information to support decision making. The study will use both descriptive and inferential statistics. McDanile and Gates (2001) defined descriptive statistics as the process of transforming a mass of raw data into tables, charts, with frequency distribution and
percentages, which are a vital part of making sense of the data. In this study, the descriptive statistics such as percentages and frequency distribution was used to analyze the demographic profile of the participants. In order to describe the data, the study used means of each variable and correlation analysis between the independent and the dependent variable.

3.7 Chapter Summary
This chapter describes the methodology to be used in undertaking the study on the relationship between IT strategies and the organization effectiveness of USIU-Africa. It also describes the population of the study and the use of stratified sampling technique and a sample size of 130 has been computed. Questionnaire has been selected as the data collection method with pretesting and actual administration to be done using emails and drop-and-pick methods. SPSS statistical tool was used to analyze data into descriptive statistics and inferential statistics. Finally, the analysis is presented in the form of charts, graphs and tables.

The next chapter outlines the results and findings of the study, based on the research questions and provides answers to these questions.
CHAPTER FOUR

4.0 DATA ANALYSIS AND INTERPRETATION

4.1 Introduction

In this chapter, it discusses the findings established from the study. The chapter also presents results on demography of the respondents; gender, age, department, education and management level. The chapter also outlines ICT strategies affecting organization effectiveness.

4.1.1 Response Rate

The response rate of a test measures the statistical power of a research and the higher the rate the better. In this study, the researcher distributed 137 questionnaires and only 130 were filled and returned. This represents a response rate of 95% as shown in table 4.1 below.

<table>
<thead>
<tr>
<th>Questionnaires</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Filled and collected</td>
<td>130</td>
<td>95</td>
</tr>
<tr>
<td>Non-Responded</td>
<td>7</td>
<td>5</td>
</tr>
<tr>
<td>Total</td>
<td>137</td>
<td>100</td>
</tr>
</tbody>
</table>

4.2 Demographic Information

In this section presents results on demographic factors of the respondents who participated in this research study.

4.2.1 Gender

Pertaining the gender of participants, 60 respondents (46.2% of the total respondents, N = 130) were male while 68 respondents (52.3% of the total participants, N = 130) were female. This implies that female employees were more willing to participate in the study, compared to men because the human resources records indicate that the university employs more men than women. The two missing values accounted for all our 130 respondents. Figure 4.1 below presents these statistics clearly;
4.2.2 Age

The statistics on the age bracket of the participants indicated that; 30 respondents (23.1% of the total respondents) were in the age bracket of between 22-29 years of age, the majority 52 respondents (40% of the total participants, N=130) indicated that they were between 30-37 years of age. 29 respondents (22.3% of the total population) indicated that they were between 38-46 years of age. 19 participants (14.6% of the total respondents) indicated that they were over 46 year of age. This data informs us that the university’s workforce consists of young individuals. The bar chart below presented this data;
4.2.3 Level of Education

Participants were asked to indicate their level of education, 24 respondents (18.5% of the total respondents, N=130) showed that they had reached the bachelor’s degree level. The majority group consisted of 87 participants (66.9% of the total participants) who indicated that they had reached the graduates degree level. The minority 19 respondents (14.6%) indicated that they had reached the postgraduate level of education. From this information, it is clear that the university employs individuals with at least a bachelor’s degree. The high number of graduate degree holders can be attributed to the fact that the organization is an educational institution and provides its employees with an opportunity to further their studies through an Education Tuition Waiver program. The pie chart below shows these statistics vividly.

![Pie chart showing level of education of respondents]

**Figure 4.3: Level of Education**

4.2.4 Work Experience

The statistics on the working experience of the participants showed that 66 respondents (accounting for 50.8% of the 130 respondents) had a work experience of between 0 and 5 years. 39 participants (30.0% of the total population) showed that they had a work experience of between 5–10 years. The minority experience group consisted of 25 participants (19.2% of the total population) who indicated that they had work experience of over 10 years. This data suggests that the university has a high employee turnover rate because very few employees stay longer than 10 years at the institution.
4.2.5 Department of Work

The statistics on the department that the respondent works in showed that 57 respondents who respond to the questionnaire were from the academic affairs department. 73 respondents (representing 56.2% of the total population) were from other support services. The data implies that the university has got more support employees compared to faculty who are drivers of the core business, education. This information is presented in figure 4.5 below.

4.2.6 Level of Management

The statistics on the level of management showed that 3 of the 130 (2.3%) respondents were DVC/Director. 5 respondents were academic program directors, 5 participants were senior managers, 5 participants (3.8% of the total population) were mid-level managers. 49 respondents were faculty members and 3 respondents were school deans. The majority group consisted of 60 respondents (accounting for 46.2%, N = 130) who were staff members as presented in the table below.
Table 4.2: Level of Management

<table>
<thead>
<tr>
<th>Variable</th>
<th>Distribution</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Frequency</td>
</tr>
<tr>
<td>DVC/Director</td>
<td>3</td>
</tr>
<tr>
<td>Academic program director</td>
<td>5</td>
</tr>
<tr>
<td>Senior Manager</td>
<td>5</td>
</tr>
<tr>
<td>Mid-level Manager</td>
<td>5</td>
</tr>
<tr>
<td>Faculty</td>
<td>49</td>
</tr>
<tr>
<td>Dean</td>
<td>3</td>
</tr>
<tr>
<td>Staff</td>
<td>60</td>
</tr>
<tr>
<td>Total</td>
<td>130</td>
</tr>
</tbody>
</table>

4.3 Effect of Blackboard on Student Learning Efficiency

The first objective of the study sought to establish the effect of Blackboard on student learning efficiency. Respondents were asked to indicate their level of agreement on statements concerning blackboard and student learning efficiency. Respondents were provided with several questions where they were to rate either (1) Strongly Agree (2) Agree (3) Neutral (4) Disagree (5) Strongly disagree. The following were the statistics of the responses;

4.3.1 Descriptive of Blackboard Tools

The findings revealed that Blackboard e-learning is aligned to the mission of the university. (Mean=4.50, SD=.532). It was also established that the university encourages the use of blackboard to support learning (Mean=4.67, SD=.470). It was established that Blackboard makes it easy to organize course learning outcomes (Mean=4.33, SD=.849), and Blackboard e-learning has improved course content delivery (Mean=4.17, SD=.762). The findings also revealed that Blackboard has simplified assessment of learning outcomes (Mean=4.35, SD=.657). In addition an assessment on Blackboard allows students to monitor their own progress and make them accountable for their own learning (Mean=4.06, SD=.771).

However, there was uncertainty on the benefits of Blackboard justify the amount of investment (Mean=3.91, SD=1.325) and if online collaboration improves student content retention (Mean=3.50, SD=.945). Respondents were also uncertain if Blackboard supports additional peer learning among students (Mean=3.58, SD=1.013) or if blackboard
Discussion boards allow students to extend conversations out of class (Mean=3.99, SD=.508) as indicated in Table 4.3

**Table 4.3: Blackboard Tools**

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blackboard e-learning is aligned to the mission of the university.</td>
<td>130</td>
<td>4.50</td>
<td>.532</td>
</tr>
<tr>
<td>University encourages the use of blackboard to support learning</td>
<td>130</td>
<td>4.67</td>
<td>.470</td>
</tr>
<tr>
<td>The benefits of Blackboard justify the amount of investment.</td>
<td>130</td>
<td>3.91</td>
<td>1.325</td>
</tr>
<tr>
<td>Blackboard makes it easy to organize course learning outcomes.</td>
<td>130</td>
<td>4.33</td>
<td>.849</td>
</tr>
<tr>
<td>Blackboard e-learning has improved course content delivery</td>
<td>130</td>
<td>4.17</td>
<td>.762</td>
</tr>
<tr>
<td>Online collaboration improves student content retention</td>
<td>130</td>
<td>3.50</td>
<td>.945</td>
</tr>
<tr>
<td>Blackboard supports additional peer learning among students</td>
<td>130</td>
<td>3.58</td>
<td>1.013</td>
</tr>
<tr>
<td>Blackboard discussion boards allow students to extend conversations out</td>
<td>130</td>
<td>3.99</td>
<td>.508</td>
</tr>
<tr>
<td>Blackboard has simplified assessment of learning outcomes.</td>
<td>130</td>
<td>4.35</td>
<td>.657</td>
</tr>
<tr>
<td>Assessment on Blackboard allows students to monitor their own progress</td>
<td>108</td>
<td>4.06</td>
<td>.771</td>
</tr>
<tr>
<td>and make them accountable for their own learning</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**4.3.2 Regression Analysis of E-Learning Efficiency and Organizational Effectiveness**

A regression analysis was done between e-Learning efficiency and organizational effectiveness as shown in Table 4.4 and on analysis, the R square value is 0.187 and a p-value of (0.022) was significant. Therefore, 18.7% of the variation in organizational effectiveness was caused by variables of e-Learning efficiency. The remaining 81.3% are accounted for by other factors not considered in this study and the error term.

**Table 4.4: Regression Analysis of E-Learning and Organizational Effectiveness**

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
<th>Change Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>.433a</td>
<td>.187</td>
<td>.104</td>
<td>.24294</td>
<td>.187 2.237 10 97 .022</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. Predictors: (Constant),
b. Dependent Variable: Blackboard allows students to monitor their own progress, Blackboard supports additional peer learning among students, Blackboard has simplified assessment of learning outcomes, Blackboard e-learning is aligned to the mission of the university, The university encourages the use of blackboard to support learning, Blackboard e-learning has improved course content delivery, Blackboard discussion boards allow students to extend conversations out of class, The benefits of Blackboard justify the amount of investment, Blackboard makes it easy to organize course learning outcomes, Online collaboration improves student content retention

The Anova analysis between E-Learning efficiency and organizational effectiveness revealed that the F value 2.237 and was significant (0.022) this implies that there was a
linear relationship between E-Learning efficiency and organizational effectiveness as indicated in Table 4.5

### Table 4.5: ANOVA between E-Learning efficiency and organizational effectiveness

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>1.320</td>
<td>10</td>
<td>.132</td>
<td>2.237</td>
<td>.022</td>
</tr>
<tr>
<td>Residual</td>
<td>5.725</td>
<td>97</td>
<td>.059</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>7.045</td>
<td>107</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. Dependent Variable: organization effectiveness

b. Predictors: (Constant), Assessment on Blackboard allows students to monitor their own progress and make them accountable for their own learning, Blackboard supports additional peer learning among students, Blackboard has simplified assessment of learning outcomes., Blackboard e-learning is aligned to the mission of the university., The university encourages the use of blackboard to support learning, Blackboard e-learning has improved course content delivery, Blackboard discussion boards allow students to extend conversations out of class., The benefits of Blackboard justify the amount of investment., Blackboard makes it easy to organize course learning outcomes., Online collaboration improves student content retention

#### 4.3.3 Coefficients of E-Learning Efficiency

A Pearson correlation was done between organizational effectiveness (dependent variable) against other factors of E-Learning efficiency. The results of the regression coefficients, t-statistics, standard errors of the estimates and p values are shown in table 4.6.

### Table 4.6: Coefficients of E-Learning Efficiency

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td>3.171</td>
<td>1.154</td>
<td>2.748</td>
<td>.007</td>
</tr>
<tr>
<td>Blackboard e-learning is aligned to the mission of the university.</td>
<td>.008</td>
<td>.200</td>
<td>.016</td>
<td>.039</td>
</tr>
<tr>
<td>The university encourages the use of blackboard to support learning</td>
<td>.215</td>
<td>.156</td>
<td>.410</td>
<td>1.374</td>
</tr>
<tr>
<td>The benefits of Blackboard justify the amount of investment.</td>
<td>-.038</td>
<td>.052</td>
<td>-.199</td>
<td>-.735</td>
</tr>
<tr>
<td>Blackboard makes it easy to organize course learning outcomes.</td>
<td>.135</td>
<td>.124</td>
<td>.457</td>
<td>1.087</td>
</tr>
<tr>
<td>Blackboard e-learning has improved course content delivery</td>
<td>-.043</td>
<td>.071</td>
<td>-.103</td>
<td>-.606</td>
</tr>
<tr>
<td>Online collaboration improves student content retention</td>
<td>.083</td>
<td>.158</td>
<td>.324</td>
<td>.522</td>
</tr>
<tr>
<td>Blackboard supports additional peer learning among students</td>
<td>-.173</td>
<td>.110</td>
<td>-.721</td>
<td>-1.562</td>
</tr>
<tr>
<td>Blackboard discussion boards allow students to extend conversations out of class.</td>
<td>.036</td>
<td>.206</td>
<td>.077</td>
<td>.173</td>
</tr>
<tr>
<td>Blackboard has simplified assessment of learning outcomes.</td>
<td>.026</td>
<td>.169</td>
<td>.066</td>
<td>.154</td>
</tr>
<tr>
<td>Assessment on Blackboard allows students to monitor their own progress and make them accountable for their own learning</td>
<td>.040</td>
<td>.046</td>
<td>.121</td>
<td>.874</td>
</tr>
</tbody>
</table>
When organizational effectiveness (dependent variable) against other factors of E-Learning Efficiency (Constant p value=0.007). Blackboard e-learning is aligned to the mission of the university (Beta=0.016, p value=0.97), the university encourages the use of blackboard to support learning (Beta=0.410, p value=0.01). The benefits of Blackboard justify the amount of investment (Beta=-0.199, p value=0.12) and blackboard makes it easy to organize course learning outcomes (Beta=0.457, p value=0.00).

Blackboard e-learning has improved course content delivery (Beta=-0.103, p value=0.55) and online collaboration improves student content retention (Beta=0.324, p value=0.00), blackboard supports additional peer learning among students (Beta=-0.721, p value=0.12). Blackboard discussion boards allow students to extend conversations out of class (Beta=0.077, p value=0.86) and blackboard has simplified assessment of learning outcomes (Beta=0.066, p value=0.04) and assessment on Blackboard allows students to monitor their own progress and make them accountable for their own learning (Beta=0.121, p value=0.21).

This implies that e-learning has made the university effective by aligned to the mission of the university and thus encourages the use of blackboard in supporting learning outcomes. In addition, online collaboration improves student content retention thus allow students to extend conversations out of class therefore allows students to monitor their own progress.

Despite the benefits there is lack of awareness about Blackboard e-learning being aligned to the mission of the university or improving course content delivery. Although blackboard discussion boards allow students to extend conversations out of class, unfortunately they do not and therefore limiting the organizations effectiveness.

**4.4 Effect of Library Information Systems (LIS) on Research Output**

The second objective sought to establish the effect of library information systems on research output. Respondents were required to indicate their level of agreement on statements on the effects of library information systems on research output. Respondents were provided with several questions where they were to rate either (1) Strongly Agree (2) Agree (3) Neutral (4) Disagree (5) Strongly disagree. The following were the statistics of the responses;
4.4.1 Descriptives of Library Information Systems Research Output

The findings revealed that there was uncertainty on number of scholarly publications at the university have increased since the introduction of library information systems (Mean=3.95, SD=0.903). Also on Online Public Access Catalog search engine has features that are easy to use (Mean=3.79, SD=0.408). Respondents neither agreed nor disagreed on digital repository providing the best storage for the university’s scholarly material (Mean=3.76, SD=1.044), the university’s digital repository improving the university’s research ranking on the World Wide Web (Mean=3.91, SD=0.805) or the library systems at USIU-Africa are scalable (Mean=3.81, SD=0.781).

However, majority agreed that the library systems at USIU-Africa have allowed me to produce more literary material (Mean=4.01, SD=1). Many also indicated they could access most necessary research material, conveniently using the Online Public Access Catalog (Mean=4.49, SD=0.77). They also agreed that online Public Access Catalogs have contributed to my research at the university (Mean=4.13, SD=0.751). It was also noted that USIU-Africa’s digital repository can be conveniently accessed both on and off-campus (Mean=4.05, SD=0.711). It was also revealed that library information systems have simplified acquisition and cataloguing of library material (Mean=4.46, SD=0.516).

Table 4.7: Effect of Library Information Systems on Research Output

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>The number of scholarly publications at the university have increased since the introduction of library information systems.</td>
<td>130</td>
<td>3.95</td>
<td>.903</td>
</tr>
<tr>
<td>The library systems at USIU-Africa have allowed me to produce more literary material.</td>
<td>130</td>
<td>4.01</td>
<td>1.000</td>
</tr>
<tr>
<td>I can access most necessary research material, conveniently using the Online Public Access Catalog.</td>
<td>130</td>
<td>4.49</td>
<td>.770</td>
</tr>
<tr>
<td>The Online Public Access Catalog search engine has features that are easy to use.</td>
<td>130</td>
<td>3.79</td>
<td>.408</td>
</tr>
<tr>
<td>Online Public Access Catalogs have contributed to my research at the university.</td>
<td>130</td>
<td>4.13</td>
<td>.751</td>
</tr>
<tr>
<td>Digital repository provides the best storage for the university’s scholarly material.</td>
<td>130</td>
<td>3.76</td>
<td>1.044</td>
</tr>
<tr>
<td>USIU-Africa’s digital repository can be conveniently accessed both on and off-campus.</td>
<td>130</td>
<td>4.05</td>
<td>.711</td>
</tr>
<tr>
<td>The university’s digital repository has improved the university’s research ranking on the world wide web.</td>
<td>130</td>
<td>3.91</td>
<td>.805</td>
</tr>
<tr>
<td>The library systems at USIU-Africa are scalable.</td>
<td>130</td>
<td>3.81</td>
<td>.781</td>
</tr>
<tr>
<td>Library information systems have simplified acquisition and cataloguing of library material.</td>
<td>130</td>
<td>4.46</td>
<td>.516</td>
</tr>
</tbody>
</table>
4.4.2 Regression Analysis of LIS and Organizational Effectiveness

A regression analysis was done between Library Information Systems and organizational effectiveness as shown in Table 4.8 and on analysis, the R square value was 0.034 and a p-value of (0.959) was insignificant. Therefore, 3.4% of the variation in organizational effectiveness was caused by variables of Library Information Systems.

Table 4.8: Regression Analysis of LIS and Organizational Effectiveness

<table>
<thead>
<tr>
<th>Model</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
<th>Change Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>R Square Change</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>F Change</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>df1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>df2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Sig. F Change</td>
</tr>
<tr>
<td>1</td>
<td>.183a</td>
<td>.034</td>
<td>-.058</td>
<td>.26378</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.034</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.365</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>10</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>105</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.959</td>
</tr>
</tbody>
</table>

a. Predictors: (Constant),
b. Dependent variable: Library information systems have simplified acquisition and cataloging of library material., Digital repository provides the best storage for the university’s scholarly material., The Online Public Access Catalog search engine has features that are easy to use., The number of scholarly publications at the university have increased since the introduction of library information systems., The library systems at USIU-Africa have allowed me to produce more literary material., The library systems at USIU-Africa are scalable., Online Public Access Catalogs have contributed to my research at the university., USIU-Africa’s digital repository can be conveniently accessed both on and off-campus., I can access most necessary research material conveniently using the Online Public Access Catalog., The university’s digital repository has improved the university’s research ranking on the world wide web.

The Anova analysis between Library Information Systems and organizational effectiveness revealed that the F value 0.365 and was not significant (0.959) this implies that there was no linear relationship between Library Information Systems and organizational effectiveness as indicated in Table 4.9

Table 4.9: ANOVA between LIS and organizational effectiveness

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>.254</td>
<td>10</td>
<td>.025</td>
<td>.365</td>
<td>.959b</td>
</tr>
<tr>
<td>1 Residual</td>
<td>7.306</td>
<td>105</td>
<td>.070</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>7.560</td>
<td>115</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. Dependent Variable: organization effectiveness
b. Predictors: (Constant), Library information systems have simplified acquisition and cataloging of library material., Digital repository provides the best storage for the university’s scholarly material., The Online Public Access Catalog search engine has features that are easy to use., The number of scholarly publications at the university have increased since the introduction of library information systems., The library systems at USIU-Africa have allowed me to produce more literary material., The library systems at USIU-Africa are scalable., Online Public Access Catalogs have contributed to my research at the university., USIU-Africa’s digital repository can be conveniently accessed both on and off-campus., I can access most necessary research material conveniently using the Online Public Access Catalog., The university’s digital repository has improved the university’s research ranking on the world wide web.

4.4.3 Coefficients of Library Information Systems

A Pearson correlation was done between organizational effectiveness (dependent variable) against other factors of Library Information Systems. The results of the regression coefficients, t-statistics, standard errors of the estimates and p values are shown in Table 4.10
Table 4.10: Coefficients of Library Information Systems

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td>3.290</td>
<td>1.058</td>
<td>3.109</td>
<td>.002</td>
</tr>
<tr>
<td>Scholarly publications at the university have increased since the introduction of library information systems.</td>
<td>-.037</td>
<td>.110</td>
<td>-.129</td>
<td>-.333</td>
</tr>
<tr>
<td>The library systems at USIU-Africa have allowed me to produce more literary material.</td>
<td>.069</td>
<td>.116</td>
<td>.204</td>
<td>.596</td>
</tr>
<tr>
<td>I can access most necessary research material, conveniently using the Online Public Access Catalog.</td>
<td>.052</td>
<td>.194</td>
<td>.162</td>
<td>.271</td>
</tr>
<tr>
<td>The Online Public Access Catalog search engine has features that are easy to use.</td>
<td>.091</td>
<td>.525</td>
<td>.141</td>
<td>.173</td>
</tr>
<tr>
<td>Online Public Access Catalogs have contributed to my research at the university.</td>
<td>-.199</td>
<td>.318</td>
<td>-.543</td>
<td>-.625</td>
</tr>
<tr>
<td>Digital repository provides the best storage for the university’s scholarly material.</td>
<td>.152</td>
<td>.233</td>
<td>.612</td>
<td>.652</td>
</tr>
<tr>
<td>USIU-Africa’s digital repository can be conveniently accessed both on and off-campus.</td>
<td>-.108</td>
<td>.438</td>
<td>-.295</td>
<td>-.247</td>
</tr>
<tr>
<td>The university’s digital repository has improved the university’s research ranking on the world wide web.</td>
<td>-.117</td>
<td>.564</td>
<td>-.351</td>
<td>-.207</td>
</tr>
<tr>
<td>The library systems at USIU-Africa are scalable.</td>
<td>-.116</td>
<td>.099</td>
<td>-.367</td>
<td>-1.171</td>
</tr>
<tr>
<td>Library information systems have simplified acquisition and cataloguing of library material.</td>
<td>.413</td>
<td>.330</td>
<td>.828</td>
<td>1.250</td>
</tr>
</tbody>
</table>

When organizational effectiveness (dependent variable) against other factors of Library Information Systems (Constant p value=0.002). The number of scholarly publications at the university have increased since the introduction of library information systems (Beta=-0.129, p value=0.74). The library systems at USIU-Africa have allowed me to produce more literary material (Beta=0.204, p value=0.55). I can access most necessary research material, conveniently using the Online Public Access Catalog (Beta=0.162, pvalue=0.79). The Online Public Access Catalog search engine has features that are easy to use. (Beta=0.141, p value=0.86).Online Public Access Catalogs have contributed to my research at the university (Beta=-0.543, p value=0.53).Digital repository provides the best storage for the university’s scholarly material (Beta=0.612, p value=0.52). USIU-Africa’s digital repository can be conveniently accessed both on and off-campus (Beta=-0.295, p value=0.81). The university’s digital repository has improved the university’s research ranking on the World Wide Web (Beta=-0.351, p value=0.84), the library systems at USIU-Africa are scalable (Beta=-0.367, p value= 0.24) and library information systems have simplified acquisition and cataloguing of library material (Beta=0.828, p value=0.21).
The finding revealed the USIU-Africa has gained organizational effectiveness through having library systems that produce material that is more literary and allowing for the access most necessary research material, conveniently using the Online Public Access Catalog. It was also noted that having a digital repository has also provided the best storage for the university’s scholarly material conveniently accessed both on and off-campus.

4.5 Effect of Enterprise System Integration on Employee Productivity
The third objective of the study sought to establish the effect of enterprise system integration on employee productivity. Respondents were required to indicate their level of agreement on statements on the effect of enterprise system integration on productivity. Respondents were provided with several questions where they were to rate either (1) Strongly Agree (2) Agree (3) Neutral (4) Disagree (5) Strongly disagree. The following were the statistics of the responses;

4.5.1 Descriptive of Enterprise System Integration (ESI) on Productivity
The findings revealed that Enterprise system integration has contributed to a reduction in labor costs due to streamlined operations (Mean=4.05, SD=0.697) and data collected by systems integration has led to better decision making (Mean=4.37, SD=0.728). The findings revealed that integrated systems reduce the orientation and training effort and enable specialized know-how of the application used (Mean=4.45, SD=0.674) and the system integration allows university employees to work and resolve issues from a single work station (Mean=4.20, SD=0.591) and implementation of counter measures for critical processes (Mean=4.37,SD=0.710). It was also noted that integrated systems provide better collaboration within the organization (Mean=4.37, SD=0.708) and integrated systems provide real-time data access with lower risks (Mean=4.35, SD=0.727). Overall use of integrated systems has improved the performance of the university (Mean=4.58, SD=0.635). There was uncertainty of systems integration at USIU-Africa has helped to safeguard the institution’s data (Mean=3.88, SD=0.409).
Table 4.11: Effect of Enterprise System Integration on Productivity

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enterprise system integration has contributed to a reduction in labor costs due to streamlined operations.</td>
<td>130</td>
<td>4.05</td>
<td>.697</td>
</tr>
<tr>
<td>Data collected by systems integration has led to better decision making.</td>
<td>130</td>
<td>4.37</td>
<td>.728</td>
</tr>
<tr>
<td>Integrated systems reduce the orientation and training effort and enable specialized know-how of the application used.</td>
<td>130</td>
<td>4.45</td>
<td>.674</td>
</tr>
<tr>
<td>System integration allows USIU-Africa employees to work and resolve issues from a single work station.</td>
<td>130</td>
<td>4.20</td>
<td>.591</td>
</tr>
<tr>
<td>System integration allows implementation of counter measures for critical processes.</td>
<td>130</td>
<td>4.37</td>
<td>.710</td>
</tr>
<tr>
<td>Integrated systems provide better collaboration within the organization.</td>
<td>130</td>
<td>4.37</td>
<td>.708</td>
</tr>
<tr>
<td>Integrated systems provide real-time data access with lower risks.</td>
<td>130</td>
<td>4.35</td>
<td>.727</td>
</tr>
<tr>
<td>Systems integration at USIU-Africa has helped to safeguard the institution’s data.</td>
<td>130</td>
<td>3.88</td>
<td>.409</td>
</tr>
<tr>
<td>Overall use of integrated systems has improved the performance of the university.</td>
<td>130</td>
<td>4.58</td>
<td>.635</td>
</tr>
</tbody>
</table>

4.5.2 Regression Analysis of Enterprise System Integration Organizational Effectiveness

A regression analysis was done between Enterprise System Integration and organizational effectiveness as shown in table 4.12 and on analysis, the R square value was 0.043 and a p-value of (0.123) was insignificant. Therefore, 4.3% of the variation in organizational effectiveness was caused by variables of Enterprise System Integration.

Table 4.12: Regression Analysis of ESI and Organizational Effectiveness

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
<th>Change Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>R Square Change</td>
</tr>
<tr>
<td>1</td>
<td>.344&lt;sup&gt;a&lt;/sup&gt;</td>
<td>.119</td>
<td>.043</td>
<td>.25157</td>
<td>.119</td>
</tr>
</tbody>
</table>

<sup>a</sup> Predictors: (Constant), Overall use of integrated systems has improved the performance of the university., Integrated systems provide better collaboration within the organization., System integration allows USIU-Africa employees to work and resolve issues from a single work station., Systems integration at USIU-Africa has helped to safeguard the institution’s data., Integrated systems reduce the orientation and training effort and enable specialized know-how of the application used., Data collected by systems integration has led to better decision making., Enterprise system integration has contributed to a reduction in labor costs due to streamlined operations., Integrated systems provide real-time data access with lower risks., Enterprise system integration has helped in processing financial transactions of the university., System integration allows implementation of counter measures for critical processes.
The Anova analysis between Enterprise System Integration and organizational effectiveness revealed that the F value 1.573 and was not significant (0.123) this implies that there was no linear relationship between Enterprise System Integration and organizational effectiveness as indicated in Table 4.13

Table 4.13: Enterprise System Integration and organizational effectiveness

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>.996</td>
<td>10</td>
<td>.100</td>
<td>1.573</td>
<td>.123</td>
</tr>
<tr>
<td>1</td>
<td>7.404</td>
<td>117</td>
<td>.063</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>8.400</td>
<td>127</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. Dependent Variable: organization effectiveness
b. Predictors: (Constant). Overall use of integrated systems has improved the performance of the university., Integrated systems provide better collaboration within the organization., System integration allows USIU-Africa employees to work and resolve issues from a single work station., Systems integration at USIU-Africa has helped to safeguard the institution’s data., Integrated systems reduce the orientation and training effort and enable specialized know-how of the application used., Data collected by systems integration has led to better decision making., Enterprise system integration has contributed to a reduction in labor costs due to streamlined operations., Integrated systems provide real-time data access with lower risks., Enterprise system integration has helped in processing financial transactions of the university., System integration allows implementation of counter measures for critical processes.

4.5.3 Coefficients of Enterprise System Integration

A Pearson correlation was done between organizational effectiveness (dependent variable) against other factors of Enterprise System Integration. The results of the regression coefficients, t-statistics, standard errors of the estimates and p values are shown in table 4.14

Enterprise system integration has helped in processing financial transactions of the university (Beta=-0.168, p value=0.73). Enterprise system integration has contributed to a reduction in labor costs due to streamlined operations (Beta=0.146, pvalue=0.74). Data collected by systems integration was also found to have led to better decision making (Beta= 0.168, pvalue=0.41) and integrated systems reduce the orientation and training effort and enable specialized know-how of the application used at the university (Beta=0.185, p value=0.37).

System integration allows USIU-Africa employees to work and resolve issues from a single work station (Beta=0.048, p value=0.86) while it allows implementation of counter measures for critical processes (Beta=-1.045, p value=0.18 ), and integrated of the
systems provide better collaboration within the organization (Beta=-0.257, p value=0.53). The findings also show that the integrated systems provide real-time data access with lower risks (Beta=0.759, p value=0.13) and systems integration at the university has helped to safeguard the institution’s data (Beta=0.130, p value=0.42) and an overall use of integrated systems has improved the performance of the university (Beta=0.416, p value=0.03).

Table 4.14: Coefficients of Enterprise System Integration

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
<td></td>
</tr>
<tr>
<td>(Constant)</td>
<td>3.446</td>
<td>.461</td>
<td></td>
<td>7.473</td>
</tr>
<tr>
<td>Enterprise system integration has helped in processing financial transactions of the university.</td>
<td>-0.059</td>
<td>.168</td>
<td>-1.68</td>
<td>-0.351</td>
</tr>
<tr>
<td>Enterprise system integration has contributed to a reduction in labor costs due to streamlined operations.</td>
<td>.055</td>
<td>.164</td>
<td>1.46</td>
<td>0.333</td>
</tr>
<tr>
<td>Data collected by systems integration has led to better decision making.</td>
<td>.061</td>
<td>.073</td>
<td>1.68</td>
<td>0.831</td>
</tr>
<tr>
<td>Integrated systems reduce the orientation and training effort and enable specialized know-how of the application used.</td>
<td>.071</td>
<td>.079</td>
<td>1.85</td>
<td>0.893</td>
</tr>
<tr>
<td>System integration allows USIU-Africa employees to work and resolve issues from a single work station.</td>
<td>.022</td>
<td>.127</td>
<td>0.048</td>
<td>0.171</td>
</tr>
<tr>
<td>System integration allows implementation of counter measures for critical processes.</td>
<td>-.378</td>
<td>.279</td>
<td>-1.045</td>
<td>-1.356</td>
</tr>
<tr>
<td>Integrated systems provide better collaboration within the organization.</td>
<td>-.093</td>
<td>.148</td>
<td>-.257</td>
<td>-.633</td>
</tr>
<tr>
<td>Integrated systems provide real-time data access with lower risks.</td>
<td>.269</td>
<td>.174</td>
<td>.759</td>
<td>1.546</td>
</tr>
<tr>
<td>Systems integration at USIU-Africa has helped to safeguard the institution’s data.</td>
<td>.082</td>
<td>.101</td>
<td>.130</td>
<td>.812</td>
</tr>
<tr>
<td>Overall use of integrated systems has improved the performance of the university.</td>
<td>.168</td>
<td>.074</td>
<td>.416</td>
<td>2.267</td>
</tr>
</tbody>
</table>

This implies that enterprise system integration has contributed to a reduction in labor costs due to streamlined operations and the data collected by systems integration has led to better decision making. In addition, the integrated systems reduce the orientation and training
effort and enabled specialized know-how of the application used as well as allowed USIU-Africa employees to work and resolve issues from a single work station. It is also noted that integrated systems provide real-time data access with lower risks thus help to safeguard the institution’s data and improve the performance of the university resulting into organizational effectiveness.

4.6 Chapter Summary

This chapter had discussed findings and interpretations of the study based on the research questions. The first part gives a highlight on demographic. The second part highlights findings on effect of Blackboard on student learning efficiency, how library information systems have affected research output and effects of enterprise system integration on research output. Chapter five will discuss findings, conclusions and recommendation of this study.
CHAPTER FIVE

5.0 DISCUSSION CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the summary of the result findings and the discussion done in relation to past literature related to effects of Information Technology strategies on organization performance. The study is guided by the specific research questions of the study. In this chapter the conclusion and recommendations for improvement and further studies are drawn.

5.2 Summary of the Study

The purpose of this study was to determine effects of Information Technology strategies on USIU-Africa’s organization performance. The study sought to establish how blackboard affects student learning efficiency, library information systems affect academic research output and how enterprise systems integration affects productivity at USIU-Africa. The study considered quantitative methods and descriptive statistics features predominantly in the collection and analysis of data. Descriptive statistics addresses the research questions through empirical assessments that involve numerical measurements and statistical analysis. The variables identified in the research topic were organization performance as the dependent variable and IT strategies as independent variables.

The study sought to establish the relationship between the chosen variables and to what extent each variable affects the performance of United States International University-Africa. The population of study was 392 staff at the university. Sampling technique chosen for this study was stratified random sampling technique using a sample of 137 respondents, approximately 35% of the target population. A structured questionnaire was formulated using the research questions in the study and was self-administered and sent to the institution constituents through email and drop and pick hard copies method. In this study, the descriptive statistics such as percentages and frequency distribution was used to analyze the demographic profile of the participants. In order to describe the data, the study used means of each variable and correlation analysis between the independent and the dependent variable.

The findings revealed that Blackboard e-learning is aligned to the mission of the university and USIU-Africa encourages the use of blackboard to support learning. The study established that Blackboard makes it easy to organize course-learning outcomes and has
improved course content delivery. The findings also revealed that Blackboard has simplified assessment of learning outcomes and allows students to monitor their own progress and make them accountable for their own learning.

The second objective revealed that there was uncertainty on number of scholarly publications at the university have increased since the introduction of library information systems. In addition, the Online Public Access Catalog search engine has features that are easy to use. Respondents neither agreed nor disagreed that the university’s digital repository has aided in improving the university’s research ranking on the World Wide Web. Majority agreed that the library systems at USIU-Africa have allowed for the production of more literary material and access of research material conveniently. They also agreed that online Public Access Catalogs have contributed to research at the university as it can be conveniently accessed both on and off-campus.

The third objective revealed that enterprise system integration has contributed to a reduction in labor costs due to streamlined operations and data collected by systems integration has led to better decision making. The findings revealed that integrated systems reduce the orientation and training effort and enable specialized knowledge of the application used and the system integration allows USIU-Africa employees to work and resolve issues from a single workstation. It was also noted that integrated systems provide better collaboration within the organization and integrated systems provide real-time data access with lower risks. Overall use of integrated systems has improved the performance of the university.

5.3 Discussion

5.3.1 Effects of Blackboard on Student Learning Efficiency

The findings revealed that Blackboard e learning is aligned to the mission of the university. According to Coates (2007), Blackboard e learning has been adopted by the universities as an online learning management system for both on-campus and distance learners. It has facilitated hybrid or blended studies, which combine online and on-campus components (Malikowski, Thompson, & Theis, 2007). The impact of learning management systems has been such that the boundaries between distance education and campus-based experiences have been blurred and are being replaced by hybrid modes or ‘distributed learning’ in which technology-mediated instruction is the norm (Masi & Winer, 2005).
It was also established that the university encourages the use of blackboard to support learning. Other scholars have pointed out that new technologies have the potential to change the way teachers teach and learners learn (DeNeui & Dodge, 2006). They offer a highly interactive medium of learning that can be customized to meet the individual needs of students (Levine & Sun, 2003). These systems may influence the selection and development of online resources and affect traditional teaching practices, while also introducing a new layer of complexities into the management of teaching programs (Coates, 2007).

It was established that Blackboard makes it easy to organize course learning outcomes and improve course content delivery. Davis, Lennox, Walker, & Walsh, (2007) and Malikowski, Thompson, & Theis, (2007) notes that such technologies are tending to focus on the delivery of information rather than on improving the teaching itself. Under this mode of operation, academics generate content that they deem appropriate, collect resources, section the information into weekly modules or tasks and pass the information on to students (Norton & Hathaway, 2008).

An assessment on Blackboard allows students to monitor their own progress and make them accountable for their own learning. In deed previous studies indicate that in terms of availability, users can access Blackboard via the internet at anytime and anywhere (DeNeui & Dodge, 2006), so students can view and download course materials and other information as well as submitting assignments online as soon as they are complete. Previous research e.g., Heirdsfield, Davis, Lennox, Walker, & Zhang (2007) indicates that it is the increased availability that most appeals to students. While students may appreciate the convenience, students are generally less satisfied with online learning compared to traditional face-to-face learning (Pillay, Irving, & Tones, 2007).

A regression analysis was done between E-Learning efficiency and organizational effectiveness revealed that 18.7% of the variation in organizational effectiveness was caused by variables of E-Learning efficiency. Access to support materials and learning concepts are essential needs of students (Bocchi et al., 2004). Web-based learning systems offer learner-centered learning and personalization (Roffe, 2002) by allowing integration with various types of learning content according to the learners’ need, and so they are compatible with the learners’ preferred learning styles (Little, 2001). Zhang et al. (2006) comments that e-learning through interactive video facility allows student to watch
any activities conducted inside the classroom and listen to instructors several times if needed. (Shopova, 2012) says, “E-Learning became an important instrument in the new Higher Educational Environment in the digital age which creates student-centered learning and educational practice, offering new more flexible learning methods”. Saadé and Bahli (2005) proposed that, when students’ involvement with an e-learning system to complete a task is so intense that they “lose track of time” (temporal dissociation), they tend to believe it took them less time to finish the task than it actually did.

5.3.2 Effects of Library Information Systems on Academic Research Output
The findings revealed that there was uncertainty on number of scholarly publications at the university have increased since the introduction of library information systems. Although literature has shown increased visibility by making research outputs available through open access repositories, results wider access and higher citation impact (Ertürk & Şengül, 2012; Dalton, 2013). A paper has greater chance of becoming highly cited whenever has more visibility (Egghe et al., 2013). Antelman (2004) approved across mathematics, electrical and electronic engineering, political science, and philosophy disciplines, freely available articles have a greater research impact than those that are not open-access to the users.

Despite respondents’ failure to agree nor disagree, they acknowledge that digital repository providing the best storage for the university’s scholarly material. Past literature show that most authors are motivated to publish in an open-access journal for increasing visibility and subsequently a citation advantage (Jayaprakash et al., 2013). Publishing in an open-access journal has been generally associated with a 10% boost in citations (McCabe & Snyder, 2013). Moreover, Lawrence (2001) investigated the impact of free online availability of article.

There was uncertainty about the university’s digital repository improving the university’s research ranking on the World Wide Web or the library systems at United States International University-Africa are scalable. This contradicts other studies where it is indicated that the number of citations has over 20% share in different university ranking systems (Usher & Savino, 2007; Taylor & Braddock, 2007). Therefore, most of the universities encourage their researchers to publish high quality papers that can receive high citations and will reach the widest possible audience (Ale-Ebrahim et al., 2013).

However, majority agreed that the library systems at USIU-Africa have allowed them to produce more literary material. The benefits of ICT in a library system are self-evident and
overwhelming. Okolo (2002) pointed out that the library needs ICT in order to give efficient services to its users. Not only is the speed of its operation elevated, the degree of its output is equally large. When ICT is applied in the library, there is economy of labor and operating cost. The accelerated adoption and use of ICT means that bibliographic databases, full-text documents, and digital library collections are always available to users (Chisenga, 2004).

Many also indicated they could access most necessary research material, conveniently using the Online Public Access Catalog. Information and Communication Technology (ICT) according to Krubu & Osawaru (2010) has brought unprecedented changes and transformation to academic library and information services. Conventional library and information service such as OPAC, current awareness services, users services, reference services, bibliographic services, document delivery, interlibrary loan, customer relations and audiovisual services can be provided more efficiently and effectively using ICT.

They also agreed that online Public Access Catalogs have contributed to research at the university and the USIU-Africa’s digital repository can be conveniently accessed both on and off-campus. Online Public Access Catalogs (OPACS) have enabled users to quickly, and easily locate scholarly information in an integrated environment (Allison, 2010). Research suggests that users favor internet search engines over the traditional library catalogue because Internet search engines provide relevance ranked results and have aesthetically pleasing interfaces (Lewis, 2008). They also provide access to a variety of information resource types including websites, articles and online books. In contrast, the traditional library system requires the user to search through multiple databases and repositories to locate different materials (Sadeh, 2008).

5.3.3 Effects of Enterprise Systems Integration on Productivity

The findings revealed that Enterprise system integration has contributed to a reduction in labor costs due to streamlined operations. Integrated systems provide real-time data access with lower risks thus help to safeguard the institution’s data and improve the performance of the university resulting into organizational effectiveness (Morris and Venkatesh 2010). Enterprise system integration involves extensive business processes redesign and the deployment of new software to support the new business processes (Robey et al. 2002).

Data collected by systems integration has led to better decision making. According to Vernadat (2002), data collected by systems integration has led to better decision making. In addition, the integrated systems reduce the orientation and training effort and enabled
specialized know-how of the application used. Understanding the factors that can improve job performance in the early stages of an ES implementation, when productivity is typically depressed (Markus and Tanis 2000; Ward et al. 2005), enhances the ability to foster the long-term success of ES implementations.

The findings revealed that integrated systems reduce the orientation and training effort and enable specialized know-how of the application use. Studies suggest that innovation envisaged in organizational changes raises economic performance of firms through their mutually reinforcing relationship with technology. IT for instance enables firms to bring in significant organizational changes in the areas of re-engineering, decentralization, flexible work arrangements and outsourcing (OECD, 2002). Baldwin and Sabourin (2003) observed that plants that were using new computer-driven advanced technologies experienced greater growth in labor productivity and market share. In educational institutional setting, administration has been extended as a service activity through which the fundamental objectives of the institutional process may be optimized more efficiently when allocating human and material resources as well as making the best use of existing resources (Opara & Onyije, 2014).

The findings also show that integrated systems provide better collaboration within the organization. The greatest benefits from ICT appear to be realized when ICT investment is combined with other organizational assets, such as new strategies, new business processes, new organizational structures and better worker skills (Sabourin, 2003). Empirical evidence suggests that organizational changes may improve economic performance of firms through their mutually reinforcing relationship with ICT. OECD (2002) argues that ICT is key to facilitating new organizational approaches, from lean production to teamwork to customer relations. ICT enable firms to introduce significant organizational changes in the areas of re-engineering, decentralization, flexible work arrangements and outsourcing. It allows firms to produce with greater flexibility and shortened product cycles to satisfy shifting consumer preferences (Milgrom & Roberts, 1990).

It was also revealed that the overall use of integrated systems has improved the performance of the university. Gordon (2010) observed that the ICT revolution was increasingly burdened by diminishing returns. Coordination costs of the firm are reduced by IT because of lower procurement and inventory costs and closer coordination with suppliers (Tachiki
et al., 2004; OECD, 2003, 2004). ICT lowers transaction costs and costs due to coordination, which maximizes the value of the transactions (OECD, 2004). The use of e-mail, e-commerce, and social media network have significantly cut down on the physical transportation involved in sending mail, banking, advertising and buying goods (Manochehri, Al-Esmail & Ashrafi, 2012). Odufuwa (2006) asserts that advances in ICT have progressively reduced the cost of managing information. It is enabling individuals and organizations to undertake information related tasks much more efficiently. Such advances have equally introduced innovations in products, processes and organization structures.

5.4 Conclusion

5.4.1 Effects of Blackboard on Student Learning Efficiency

E-learning has made United States International University-Africa effective by aligning the mission of the university; thus encourages the use of blackboard in supporting learning outcomes. Blackboard makes it easy to organize course-learning outcomes and has improved course content delivery. In addition, online collaboration improves student content retention thus allow students to extend conversations out of class therefore allows students to monitor their own progress.

5.4.2 Effects of Library Information Systems on Academic Research Output

The university has gained organizational effectiveness through having library systems that produce material that is more literary and allowing for the access most necessary research material, conveniently using the Online Public Access Catalog. It was also noted that having a digital repository has also provided the best storage for the university’s scholarly material conveniently accessed both on and off-campus. Such simplified assessment of learning outcomes allows students to monitor their own progress and make them accountable for their own learning.

5.4.3 Effects of Enterprise Systems Integration on Productivity

Enterprise system integration has contributed to a reduction in labor costs due to streamlined operations and the data collected by systems integration has led to better decision making. In addition, the integrated systems reduce the orientation and training effort and enabled specialized know-how of the application used as well as allowed employees to work and resolve issues from a single work station. It is also noted that integrated systems provide real-time data access with lower risks thus help to safeguard the
institution’s data and improve the performance of the university resulting into organizational effectiveness.

5.5 Recommendations

5.5.1 Recommendation for Improvement

5.5.1.1 Effects of Blackboard on Student Learning Efficiency

USIU-Africa needs to educate its employees about the benefits of Blackboard considering the amount of investment made. Faculty need to explore the various tools on the system that can support their pedagogy and get sufficient training on them. Students should be encouraged to make use of Blackboard to support peer learning to extend conversations out of class. This would greatly enhance their learning experience at the university.

5.5.1.2 Effects of Library Information Systems on Academic Research Output

USIU-Africa need to strive to continue gaining organizational effectiveness through having library systems that are accessible and capable of producing literary material for research. There is a need to encourage production of more literary material conveniently using the Online Public Access Catalogs. There is a need to create awareness on increased number of scholarly publications on the university’s library information systems.

5.5.1.3 Effects of Enterprise Systems Integration on Productivity

The university needs to constantly find ways to integrate ICT systems because it translates to reduced labor costs. Integrated systems have also been found to produce data that can be used to streamline operations. This data can be obtained using data mining and business intelligence systems. Security systems need to be upgraded enable the systems integration to efficiently safeguard the institution’s data.

5.5.2 Recommendation for Further Studies

This study focused on the effects of information technology strategies on USIU-Africa’s organization performance. There is a need to undertake similar studies in other private and public learning institution to be able to compare and generalize the findings. The study only focused on blackboard tools, library information systems and enterprise systems integration. Further studies should be done to determine students’ perception and use of the internet as a hub for learning and the effect of modern technology on students’ performance.
REFERENCES


OECD (2002), Organisational Change and Firm Performance, DSTI/DOC (2002) 14,


APPENDICES

Appendix A: Introduction Letter

Ernest Okoth Andugo

United States International University - Africa,

P.O. Box 14634, 00800,

July 11, 2017

To whom it may concern,

**RE: Effect of Information Technology Strategies on Organization Effectiveness**

I am a graduate student at United States International University–Africa (USIU), undertaking a research to examine the relationship between ICT strategies and organization effectiveness in USIU-Africa. This is in partial fulfillment of the degree program requirement of the Master of Business Administration at USIU-Africa.

You have been randomly selected to participate in this study. It is estimated that it will take between ten to twenty minutes to complete the questionnaire. Please respond as objectively and candid as possible. Your participation will be highly appreciated and is essential for the accomplishment of this study.

I guarantee that the information provided shall be handled with utmost confidentiality and will be used only for academic purposes where confidentiality is strictly emphasized. Kindly spare some time to complete the questionnaire attached.

Thank you.

Yours faithfully,

Ernest Andugo

0720 587670
Appendix B: Questionnaire

Please answer all questions

SECTION A: Background Information

1. Your gender: Male [ ]  Female [ ]

2. You age bracket (Tick whichever appropriate)
   - Below 22 [ ]
   - 22 - 29 years [ ]
   - 30 - 37 years [ ]
   - 38 - 46 years [ ]
   - Over 46 years [ ]

3. What is your highest level of education? (Tick as applicable)
   - Primary Certificate [ ]
   - Secondary Certificate [ ]
   - Diploma/Certificate [ ]
   - Bachelors’ degree [ ]
   - Postgraduate degree [ ]
   - If others, specify ……………………………………………………………..

4. Working experience in the Organization
   - 0 – 5 years [ ]
   - 5 – 10 years [ ]
   - Over 10 years [ ]

5. Department that you work
   - Academic Affairs [ ]
   - Other Support Services [ ]

6. Level of Management
   - DVC/Director [ ]
   - Academic program Director [ ]
   - Senior Manager [ ]
   - Mid-level Managers [ ]
   - Faculty [ ]
   - Dean [ ]
   - Staff [ ]
**SECTION B: BLACKBOARD AND STUDENT LEARNING EFFICIENCY**

State by ticking the appropriate box, your level of agreement with the following statements on a scale of **1 to 5**, Where **1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree and 5 = Strongly Agree**

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<td>7</td>
<td>Blackboard e-learning is aligned to the mission of the university.</td>
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<td>8</td>
<td>The university encourages the use of Blackboard to support learning.</td>
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<td>The benefits of Blackboard justify the amount of investment.</td>
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<td>10</td>
<td>Blackboard makes it easy to organize course learning outcomes.</td>
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<td>11</td>
<td>Blackboard e-learning has improved course content delivery</td>
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<td>12</td>
<td>Online collaboration improves student content retention</td>
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<td>13</td>
<td>Blackboard supports additional peer learning among students</td>
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<td>14</td>
<td>Blackboard discussion boards allow students to extend conversations out of class.</td>
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<td>15</td>
<td>Blackboard has simplified assessment of learning outcomes.</td>
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<td>16</td>
<td>Assessment on Blackboard allows students to monitor their own progress and make them accountable for their own learning.</td>
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17. Do you think that there are other ways in which Blackboard influences the university’s effectiveness? 

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64
SECTION C: LIBRARY INFORMATION SYSTEMS AND RESEARCH OUTPUT

State by ticking the appropriate box, your level of agreement with the following statements on a scale of 1 to 5, Where 1= Strongly Disagree, 2= Disagree, 3= Neutral, 4= Agree and 5= Strongly Agree)

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<td>18</td>
<td>The number of scholarly publications at the university have increased since the introduction of library information systems.</td>
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<td>19</td>
<td>The library systems at USIU-Africa have allowed me to produce more literary material.</td>
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<td>20</td>
<td>I can access most necessary research material, conveniently using the Online Public Access Catalog.</td>
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<td>The Online Public Access Catalog search engine has features that are easy to use.</td>
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<td>22</td>
<td>Online Public Access Catalogs have contributed to my research at the university.</td>
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<td>23</td>
<td>Digital repository provides the best storage for the university’s scholarly material.</td>
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<td>24</td>
<td>USIU-Africa’s digital repository can be conveniently accessed both on and off-campus.</td>
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<td>25</td>
<td>The university’s digital repository has improved the university’s research ranking on the world wide web.</td>
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<td>26</td>
<td>The library systems at USIU-Africa are scalable.</td>
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<td>27</td>
<td>Library information systems have simplified acquisition and cataloguing of library material.</td>
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28. Are there other ways in which library information systems have improved the performance of the university? Please give details

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SECTION D: ENTERPRISE SYSTEM INTEGRATION AND PRODUCTIVITY

State by ticking the appropriate box, your level of agreement with the following statements on a scale of 1 to 5, Where 1= Strongly Disagree, 2= Disagree, 3= Neutral, 4= Agree and 5= Strongly Agree)

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<tr>
<td>29</td>
<td>Enterprise system integration has helped in processing financial transactions of the university.</td>
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<td>30</td>
<td>Enterprise system integration has contributed to a reduction in labor costs due to streamlined operations.</td>
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<td>31</td>
<td>Data collected by systems integration has led to better decision making.</td>
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<td>32</td>
<td>Integrated systems reduce the orientation and training effort and enable specialized know-how of the application used.</td>
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<td>33</td>
<td>System integration allows USIU-Africa employees to work and resolve issues from a single work station.</td>
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<td>System integration allows implementation of counter measures for critical processes.</td>
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<td>Integrated systems provide better collaboration within the organization.</td>
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<td>36</td>
<td>Integrated systems provide real-time data access with lower risks.</td>
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<td>37</td>
<td>Systems integration at USIU-Africa has helped to safeguard the institution’s data.</td>
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<td>38</td>
<td>Overall use of integrated systems has improved the performance of the university.</td>
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39. Are there other ways in which enterprise system integration has improved the performance of the university? Please give details

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SECTION E: ORGANIZATIONAL EFFECTIVENESS

State by ticking the appropriate box, your level of agreement with the following statements on a scale of 1 to 5, Where 1= Strongly Disagree, 2= Disagree, 3= Neutral, 4= Agree and 5= Strongly Agree)

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<td>40</td>
<td>ICT strategies are central to the overall business strategy</td>
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<td>41</td>
<td>Top management support the implementation of ICT strategies.</td>
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<td>42</td>
<td>It is possible to measure the cost-benefit analysis of ICT strategy implementation.</td>
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<td>43</td>
<td>ICT strategies at USIU-Africa have contributed to a favourable cost performance trend.</td>
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<td>44</td>
<td>ICT strategies have enhanced connectivity capability of USIU-Africa.</td>
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<td>45</td>
<td>ICT strategy implementation at USIU-Africa are as a result of competitive pressure.</td>
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<td>46</td>
<td>The university gets good quality service for its ICT solutions.</td>
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<td>47</td>
<td>Employees of USIU-Africa support the implementation of ICT strategies.</td>
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<td>48</td>
<td>ICT strategies at USIU-Africa have improved organizational communication.</td>
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<td>49</td>
<td>ICT strategies have contributed to structural changes within the university.</td>
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50. Are there other ways in which information technology has improved the university’s effectiveness? Please give details

________________________________________________________________________
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THANK YOU