CATHOLIC UNIVERSITY COLLEGE OF GHANA

THE EFFECTS OF MANAGEMENT INFORMATION SYSTEMS ON ORGANIZATIONAL PERFORMANCE: A CASE STUDY OF CATHOLIC UNIVERSITY COLLEGE OF GHANA, FIAPRE

VERONICA KYERAA ASANTE

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BY

VERONICA KYERAA ASANTE

Dissertation submitted to the Faculty of Economics and Business Administration, Catholic University College of Ghana, in partial fulfilment of the requirements for the Award of Master of Business Administration degree in **********

2020

DECLARATION

Candidate's Declaration

I hereby declare that this dissertation is the result of my own original research and that no part of it has been presented for another degree in this University or elsewhere.

Candidate's Signature:…… Date:……

Name: Veronica Kyeraa Asante

Supervisor's Declaration

I hereby declare that the preparation and presentation of the dissertation were supervised in accordance with the guidelines on supervision of dissertation laid down by the Catholic University College of Ghana.

Supervisor's Signature:…… Date:……

Name: Dr. Mustapha Osman Opoku

ABSTRACT

The study assessed the effects of Management Information Systems (MIS) on the organizational performance of the Catholic University College of Ghana (CUCG) and recommended the most optimal and efficient ways possible towards addressing the University's data structure issues which are not consistent across its faculties and departments. A descriptive survey design was employed with a sample size of 125 which was obtained through simple random technique. The main instrument for the data collection was structure questionnaire. The data was analysed using the Statistical Product for Service Solution (SPSS) version 23.0. Data collected were analyzed using descriptive statistics, frequencies, means, and standard deviation. The findings of the study revealed that challenges exist in the existing MIS practices but they do not significantly affect employees' performance. The study concludes that management information system indicators such as system quality, information quality, and user satisfaction have a positive and significant influence on organizational performance of CUCG. The study recommends that management should ensure that adequate budget is allocated towards building a robust, effective and an integrated MIS infrastructure that would enhance the quality of management decisions in the University.

KEYWORDS

Management Information Systems

Performance

Organizational Performance

Quality of Management Decisions

Data

Database

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DEDICATION

I dedicate this work to my dear husband, Mr. Essel Kwabena Baffour and our children Akua Serwaa Bonsu, Agartha Benewaa Essel and Kofi Aturu Ohene-Essel for their inspiration, material and spiritual support which made this work come to a reality.

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LIST ACRONYMS

CUCG	-	Catholic University College of Ghana
MIS	-	Management Information Systems
IT	-	Information Technology
IS	-	Information Systems
BSC	-	Balanced Score Card
PM	-	Performance Measurement
TPS	-	Transaction Processing Systems
DSS	-	Decision Support Systems
EIS	-	Executive Information Systems
ESS	-	Executive Support Systems
SDLC	-	Systems Development Life Cycle
ICT	-	Information and Communication Technology
SPSS	-	Statistical Package for Social Sciences

CHAPTER ONE

INTRODUCTION

This chapter of the study contains the background to the study, statement of the problem, objectives of the study, research questions, significance of the study, delimitation, limitations of the study, definition of terms and the organisation of the study.

Background to the Study

The world of business today is complex and growing more complex every day. Nothing moves without information and it is generally believed that information is powerful and that its owner has power (Gonfa, 2013). Many organisations in modern times rely heavily on information to thrive and in this context, the need for information systems has arisen (Franco & Garcia, 2017). Business managers are much more concerned about the effect of competition they faced with and that they seek to explore all opportunities that are available in their local source and the global environment to employ a lot of resources as efficiently as possible to accomplish the goals and objectives of the enterprise.

As far as the rapid technological advances at present and the widespread knowledge of dissemination are concerned, there has been evolution in the means of communication and transmission of information. Therefore, organizations have immensely invested in information systems because they seek to maintain their competitiveness in order to remain in the market (Thomas, 2008). Thus, growing competitive organizations have been forced to take quick and effective decisions thereby resulting to the effectiveness of organizational performance (Bellur, Mehta, Shafter & Amar, 2017). Hence, organizations now need tools to aid them to make quick and automated decisions and therefore

must contend with technological innovations along with an ever-growing global economy in which events on one end of the globe will affect the other. Adding to ways to reduce uncertainty, only an effective Management Information System (MIS) can mitigate these challenges (Obara, 2013).

According to Luenendonk (2017), Management Information System (MIS) has become the key driving factor to facilitate and attain efficient decision making in organizations and also a major function area of business administration and its role and impact on the smooth operation of a company can never be overemphasized. The stunning advancement in technology makes MIS applications the prime driver and enabler of business strategy and essential to the survival of every organization. Management information systems take into account the integrative nature of information flow as well as the structuring of the organization around decision centers.

Moreover, the necessity of MIS is mostly due to its ability to collect, transmit, process and data at any time and to provide reliable, complete, accessible, and useful information in a timely manner to the users of the system and for decision making by management. Thus, the prosperity of organizations depends on its capability of making timely and effective decisions for planning, directing, evaluating and controlling the activities for which they are responsible. In relation to the above, Kroll (2015) explained that the relationship between the use of information systems and their impact on organizational performance is a positive relationship and a significant improvement in the organizational performance of the organization. Therefore, a balanced and complete assessment of an organization's performance should consist of different dimensions of performance since organizational performance cannot be done

without integrating systems, processes, individuals, customers, partners and administration (Jyoti & Sharma, 2012).

Statement of the Problem

The emergence of information technology has become a key driving force in the operations of many organizations because no organization can survive, expand and attain significant development without information (Kehinde & Yusuf, 2012). Hence, these organizations increasingly continue to focus on developing information systems that support organizational decision-making processes, communication, knowledge management and aid them remain competitive. The essential element of information systems needed for the integration of business processes and foster decision making in organizations is MIS (Kroenke, Boyle & Poatsy, 2010).

The main objective of MIS is to serve as a backbone for individuals to effectively and efficiently perform their jobs and to provide accurate and time-based information from a centralized database system for strategic decisions (Loudon & Loudon, 2010). Thus, in this regard, people (employees and customers) may have access to some data from any part of the system regardless of who did the data entry and, under the same thinking processes, may use data and programs from whichever part of the system (Jyoti & Sharma, 2012).

The main problem is that the University's (CUCG) data structure is not consistent across its faculties and departments and this has generated concerns among staff regarding its effects on organizational performance. The problem arises from the fact that the principal departments or offices in CUCG have implemented their own database (MIS applications) without establishing relationships between the various systems. This was a growing concern and a

challenge that needed immediate attention, if management wishes to establish a relationship between MIS and organizational performance, because sharing of data and retrieval of information for prompt decision making was cumbersome and required some tedious manipulations of data here and there (CUCG Report, 2020).

Therefore, the study sought to assess the capabilities of management information system and their impact on organizational performance of CUCG and to recommend the most optimal and efficient ways possible towards addressing the University's data structure issues which are not consistent across its faculties and departments.

Purpose of the Study

The purpose of the study was to assess the effects of management information systems (MIS) on organizational performance and establish the relationship that exists between the various faculties and departments in Catholic University College of Ghana (CUCG) as well as how they are impacting on the university's operations and performance.

Research Objectives

The general objective of this study was to assess the effects of management information systems (MIS) on organizational performance in CUCG.

Other objectives of the study include:

1. To assess the current state of management information systems (MIS) practices in the University.
2. Examine how MIS contributes to the effectiveness of the operations of the University

3. Identify the challenges confronting the implementation of MIS in the University.

Research Questions

The main research question was what is the effects of management information systems (MIS) on organizational performance in CUCG? Other questions posed in the study include:

1. What is the current state of MIS practices of the University?
2. What is the effect of MIS on the performance of the University?
3. What are the challenges confronting the implementations of MIS in the University?

Significance of the Study

The significance of the study would be seen in three areas, namely, theoretical significance, practice significant and policy significant. With respect to the theoretical significant, the study will provide literature and empirical data to researchers in the areas of design and implementation of management information systems (MIS). This will make empirical data and literature available to researchers with respect to data integration provided by MIS. The results of the study would also be useful to other researchers interested in the problem under investigation as the study has laid a platform and provide a theoretical basis about MIS in a typical private university, which may require further studies.

On the policy significance, results of the study will assist organization in providing policy guideline that will ensure effective and efficient design and implementation of integrated school management system, in order to completely eliminate the existing of multiple MIS applications and the human

factors that exist in data management. Lastly, the study would provide practical guidance for MIS design and implementation in areas such as MIS successes and failures; and also provide useful contributions that are necessary for the achievement of benefits when adopting MIS into the operations of the university. This study would further provide practical solutions to the numerous issues confronting data management in universities in Ghana.

Delimitation

This research did not consider modifications to the existing multiple application systems adoption in CUCG but mainly concentrated on the implementation of an effective MIS application to help improve the quality of managerial decisions. The study again did not take into account the various activities performed by each of the offices or departments, but recommended an integrated MIS which would allow officials of CUCG to completely access and retrieve information from a centralized database.

Limitations

The objective of this study was to assess the effect of management information systems on organizational performance of Catholic University College of Ghana. This dissertation was not without limitations. The study had the following bottlenecks:

i. The sample size of 95 participants could have been expanded to include more participants.
ii. Other data collection methods such as secondary and interviews (face-to-face communication) could have been employed.
iii. Finance and time constraints were major challenges encountered.

iv. The timing of the research coincided with the Covid-19 pandemic which resulted into lack of cooperation as some respondents did not really want to make time to complete the questionnaire or touch the printed papers (hard copies).

Definitions of Terms

Data: Data is any sort of information which is stored in computer's memory in its raw or unorganized form such as alphabets, numbers, or symbols that represents conditions, ideas, or objects.

Information: refers to data that is timely organized for a purpose, accurate, and presented within a context that gives it meaning and relevance, and can also lead to an increase in understanding and decrease in uncertainty.

Information Systems: Information Systems (IS) are systems that provide information service. To do so, they must receive information and store, access, transform, transfer and process information so as to produce the desired information service.

Information Technology: IT falls under the Information Systems umbrella comprises both computer and telecommunications technology for the collection, storage, retrieval, reproduction, processing, diffusion, and transmission of information.

Management Information Systems (MIS): MIS can be referred to as an information system that makes timely and effective decisions for planning, directing and controlling the activities for which they are responsible and also helps businesses achieve their goals and objectives. MIS can also be described as systems that are concerned with the enhancement of managerial effectiveness by satisfying widespread information requirements.

Database: A database is an electronic system that allows data to be stored, easily accessed, manipulated and updated. A database is an organized collection of data, generally stored and accessed electronically from a computer system.

Performance: Is the process or action of carrying out a function or a task

Organizational performance: It comprises the actual output or results of an organization as measured against its intended outputs.

Organization of the Study

The study consists of five chapters and is organized as follows: Chapter one is made up of the background to the study. It also provides a basic understanding of the problem statement. The research objectives are also outlined. In addition, the purpose of the study is described together with limitations and delimitations. Since the study uses some technical terms, some of the primary definitions are provided in order to give an overview of the purpose of the research and the organization of the rest of the document.

Chapter two consists of the literature review which presents an analysis of relevant literature pertaining to management information systems, data or information privacy concerns. Chapter three presents the research methodology. This chapter explores the theoretical and empirical approaches available to carry out a research work.

Chapter four is made up of presentation of results and discussion. This chapter details how the research was conducted. It presents the primary data collected, analyses and interprets the findings in relation to the research objectives. Chapter five consists of the summary, conclusion and

recommendations. The final chapter includes discussion on some general aspects regarding the findings or lessons learned from the study and how this expands upon the body of knowledge to date. It acknowledges the limitations of the research and suggests areas of interest for future study.

CHAPTER TWO

LITERATURE REVIEW

Introduction

This chapter reviews literature on management information systems (MIS) domain and places emphasis on system theory and how it applies to the MIS discipline. It therefore discusses the specific theories that underpin the study, conceptual definitions, empirical review and conceptual framework of the study.

Theoretical Framework of Study

This section of the chapter discusses the main theory that underpins the study and set out the theoretical framework for the execution of the study. The section examines the theories that support the study, the main principles of the theory and how the theory supports the study in order to place the study in its theoretical context. The study is underpinned by Lascelles and Peacock Model, and DeLone-McLean information systems model.

Lascelles and Peacock Model for Organizational Performance (1996)

Organizational performance can be considered as a multidimensional construct consisting of more than just financial performance. A balanced and complete assessment of an organization's performance should consist of different dimensions of performance since organizational performance cannot be done without integrating systems, processes, individuals, customers, partners and administration (Jyoti & Sharma, 2012). Saeed et al. (2013) emphasized that there are a lot of variables that have an impact on performance. These variables involve managerial position, organizational culture, personal problems, job content and financial rewards. According to Luarn and Huang,

(2009) who claimed that there are three factors affecting performance: task-technology fit, computer self-efficacy and utilization. Therefore, performance measurement aims to contribute to improving the performance of an organization by showing the main areas where the staff should focus on in their work, as the evaluation of corporate performance is critical to many various parties (Dincer, Hacioğlu & Yüksel, 2017).

The model below was developed by Lascelles and Peacock in 1996 to show how feedback should be articulated between results and enablers (causes). The various objects for cause and effect for the model are also explained.

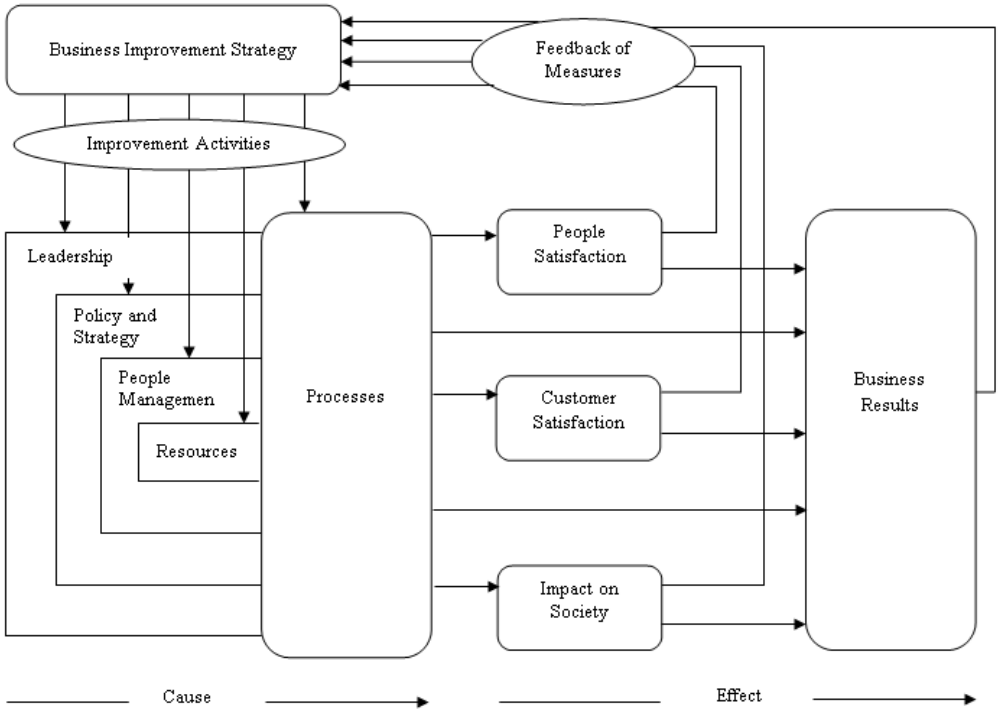

Figure 1: Lascelles and peacock for organizational performance

Source: Adopted from Lascelles and Peacock (1996)

Cause Criteria

Leadership: This criterion focuses on the behaviour of executive team and all other managers in as much as how leaders develop and clarify a

statement of vision that proposes total quality and continuous improvement which the organisation and its people can achieve.

***People management*:** This is about continuous improvement of the people (employees) resources by developing and preserving their skills and capabilities. The major emphasis is on teamwork, effective appraisal, reward and communication, and the involvement of everyone.

***Policy and strategy*:** This reviews the organization's mission, values, vision, and strategic direction; how the organisation implements its vision and mission based on the concept of total quality and improvement.

***Resources*:** This relates to how the organisation manages and utilises its external partnerships and internal resources (finance, information, materials, application of technology) effectively in order to carry out effective business performance as stated in its mission and strategic plan.

***Processes*:** This concerns management of all value-adding activities within the organisation to satisfy customers and other stakeholders.

Result Criteria

***People satisfaction*:** This concerns the employees' feelings about their organisation. A total quality approach would seek to satisfy the needs and expectations of its people (employees).

Customer satisfaction: This relates to what the perceptions of external customers are, of the organisation and its products and services. A total quality approach will seek to satisfy the needs and expectations of customers.

***Impact on society*:** This relates to the perception of the organisation within the society as a whole. This would include views about the organization's approach to quality of life, the environment and preservation of global

resources. A total quality approach would progressively satisfy the needs and expectations of the community at large.

Business results: This relates to the achievement of the organisation in relation to its planned business performance goals. This can be broadly categorised into financial and non-financial results (Nowduri, 2011).

DeLone-McLean Information Systems Model (1992)

Several models for measuring the success factors of information systems have been proposed by some researchers such as (Gable, Sedera & Chan, 2008). One of the widely accepted models is the DeLone-McLean information systems model in 1992 and the updated version in 2003. Moreover, different researches have been carried out in which the success factors of the models are utilized to the evaluation in information systems success or performance (Lee & Yu, 2012). The DeLone and McLean's model has made a significant contribution to the literature on measuring the success of information systems because it was the first study to attempt to force some order on information systems chosen by researchers for success measures.

Although the model incorporates the comprehensive independent variables used by researchers in information systems, but it has received many criticisms (Nowduri, 2011). First, the information systems used in the DeLone and McLean models provide many explanations for proper examination. Also, it is said that the use of information systems plays a complex and controversial role in the success of the modeling system. Secondly, since user satisfaction represents the individual effects of information systems in a regulatory framework, investigating the cause of user satisfaction on individual influences is futile. Finally, and more importantly, the model does not plainly and

completely explain the relationship between user satisfaction and individual/organizational effect (Garrity, Glassberg, Kim, Sanders & Shin, 2005).

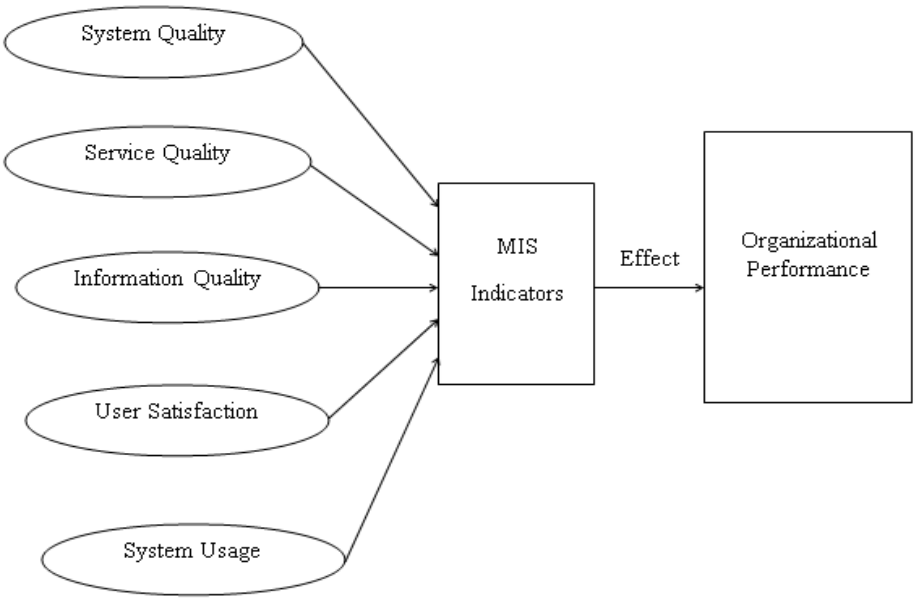

Figure 2: DeLone & mclean model of MIS and organizational performance. Source: Author construct (2020).

DeLone & McLean, (2003) offered an updated model reflecting the criticism of others and the situation at the time. As the service concept was added to IT with the use of the internet, including service quality, the explanation of constructs is as follows:

System Quality: System quality is a desirable characteristic of information systems (Petter, DeLone, & McLean, 2008). System quality is concerned with whether or not there are "bugs" in the system, the consistency of the user interface, and ease of use. Also, it considers both the performance characteristics and functionality (Urbach, Smolnik & Riempp, 2009). In addition, the system quality represents the quality of processing the information systems itself, which contains software and data elements, and also measures the success of the system (Lee & Yu, 2012).

System quality: System quality is also a key factor that affects the acceptability of information systems and improving organizational performance (Al-mamary, Shamsuddin & Aziati, 2014). According to Gorla, Somers and Wong (2010) it is assumed that system quality is positively associated with information quality and organizational effect. Furthermore, Raymond and Bergeron (2008) confirmed that the quality of the information outputs is strongly related to the technical and service aspects of the system, that is, to the quality of the system.

Information Quality: Information quality is defined as the degree to which information generated by the website is delicate, pertinent, complete, and in the form required by the user. The desirable characteristics of the system outputs is where the information is of high quality and fulfils the user's requirements (Kaiser & Ahlemann, 2010). Information systems are generated to supply valuable information for decision-making for people and groups by storing, maintaining, processing and managing resources of information (Lee & Yu, 2012). Information quality has become an important concern for organizations and play an active role in MIS research. Therefore, it is important for a company to pay attention not only to the system quality to improve the quality of the information produced but also to improve the organization's performance (Al-mamary *et al*., 2014).

Service Quality: To date, service quality is the most researched area in services marketing. Service quality is founded on a comparison between what the customer feels should be offered and what is provided. This success dimension covers various aspects such as responsiveness, reliability, empathy, competence, and the overall quality (Urbach *et al.,* 2009). Most studies have

established that there is a positive relationship between service quality and performance (Jafari, Forouzandeh & Hashemi, 2015). The impact of service quality can be understood from the effect of a company's service quality on the company's performance. Therefore, the promotion of service quality could enhance organizational performance (Cheng & Lin, 2014) as the organizational success depends on how well the information system services are delivered. Furthermore, the reliability of service quality will result in timely and efficient decision-making, which, in turn, will improve internal organizational efficiency (Gorla *et al.,* 2010).

System Usage: Using the system refers to the degree and method to which employees and customers use the capabilities of the information system. For example, the amount of use, frequency of use, nature of use, fitness for use, extent of use, and the aim of use (Nowduri, 2011). Therefore, Kroll (2015) explained that the relationship between the use of information systems and their impact on organizational performance is a positive relationship and a significant improvement in the organizational performance of the organizations.

User Satisfaction: User satisfaction is one of the most significant measures when verifying the success of information systems in general (Urbach *et al*., 2009). It is a factor that mediates improved levels of service or system performance that users feel for the success of the information systems (Lee & Yu, 2012). For example, the level of user satisfaction covers reports, websites, and support services. In the first place, the relationship between satisfaction and performance has been for many decades the object of in-depth and disparate studies (Ouedraogo & Leclerc, 2013). Therefore, Mulyani, Hassan and Anugrah

(2016) clarified how positively it affects the satisfaction of information systems users on their performance thus improving the performance of the organization.

Conceptual Base of the Study

The focus of this section is to discuss the main variable of the study, management information system (MIS) and organizational performance. The section explains the concept of management information system, the components of MIS, inputs and output of MIS and how MIS is developed.

Management Information System

Management information systems are formal systems for presenting management with timely and suitable information necessary for decision making (Leonardi & Bailey, 2018). The system gives information on the past, present and project future and on related developments inside and outside the organization. It may be described as an integrated and organized system for collecting relevant data, transforming it into correct information and providing the same to the concerned executives. The main purpose of MIS is to "provide the right information to the right people at the right time" (Gray, 2010). The ideas of management information systems were formed to counteract such inefficient development and productive use of the computer. MIS concepts are crucial to efficient computer use in business (Obasan & Soyebo, 2012).

Management information systems (MIS) consists of three parts, namely, management, information, and systems. For better understanding of the concept of MIS, it is important to explain each part of the term, which are; Management is to achieve organizational goals efficiently and effectively through planning, organizing, directing and controlling organizational resources, and its ability to achieve the goals by others. Information is a processed that data, and according

to Laudon and Laudon (2010), data is raw unprocessed facts and figures that have no context or purposeful meaning. Hardcastle (2011) sees data as a raw fact and figures that can take the form of a number or statement such as a date or a measurement. Information is generated through the transformation of data. According to O'Brien and Marakas (2007), information is data that have been converted into a meaningful and useful context for specific end users.

Figure 3: Transforming data into information

Source: Adopted from O'Brien and Marakas (2007)

A system is a set of interrelated components, with a clearly defined boundary, working together to achieve a common set of objectives by accepting inputs and producing outputs in an organized transformation process. Hardcastle (2011) defines a system as a collection of components that work together towards a common goal. The objective of a system is to receive inputs and transform these into outputs.

MIS is basically concerned with the process of collecting, processing, storing and transmitting relevant information to support the management operations in any organizations (Loudon & Loudon, 2010). According to Hasan et al. (2014), MIS is a type of information systems that take internal data from the system and summarized it to meaningful and useful forms as management reports to use it to support management activities and managerial decision making. The purpose of MIS is to meet the general information need of all the managers in the firm or in some organizational subunit of the firm.

Nowduri and Adossary (2012) explained that MIS is a computer-based information system that provides for management-oriented reporting based

on transaction processing and business operations of the organization. Al-Mamary *et al.* (2014) emphasized that MIS is basically concerned with converting data from internal sources into information which is then communicated to managers at all the levels, in all functions to make timely and effective decisions for planning, directing and controlling the activities for which they are responsible

MIS and business systems are especially useful in the collation of business data and the production of information in the form of reports to be used as tools for decision-making (Obasan & Soyebo, 2012). On the other hand, the roles of MIS have been described as a useful tool for making business decisions by gathering data and information from MIS systems (Asemi *et al*., 2011). This concept is relatively stated by Das (2012) that MIS is mainly concerned with processing data into information for appropriate decision making. Public organizations also have strong incentives to consider economic costs in decision making, but most face other, equally important competing criteria, such as procedural equity. MIS concentrate on the automation of many business activities that aim to provide better methods of planning, reporting, and operation control. Therefore MIS, which is often referred as "information system (IS)", has attempted to provide methods to manage problems and situations around all perspectives of the management of information. Moreover, MIS is a facilitator for an organization and also supports management activities. MIS implementation, however, is high priced with costly assets, thus this implementation project requires detailed planning of its design, implementation and operation processes (Bose, 2012).

Types of Management Information Systems

MIS makes use of information technology to help managers ensure a smooth and efficient running of the organization. Information collected by these systems is structured so that the managers can easily evaluate the company's current performance vis-à-vis previous outputs. MIS is one out of several information systems that are used in business (Bose, 2012). To better understand MIS concepts let us look at the different types of information systems available in business, which include:

***Transaction Processing Systems (TPS)*:** these systems have been designed to collect; process and store transactions that occur in the day to day operations of a company. The system can also be used to cancel or modify transactions done in the past if the need arises. One property of this system that enables them to work effectively is the ability to accurately record multiple transactions even if the different transactions take place simultaneously (Das, 2012). They are built to be able to handle large volumes of transactions. Examples include stock control systems, payroll systems, order processing systems etc.

***Decision Support System (DSS)*:** these systems help decision makers to make the best decisions by generating statistical projections from analyzed data. Although it does not eliminate the need for the manager's judgment, it significantly improves the quality of the decision by offering forecasts that help determine the best course of action (Obasan & Soyebo, 2012). These systems compile information from several sources for purposes of aiding in decision making. Examples of these systems include computer supported cooperative

work, group decision support systems, logistics systems and financial planning systems (Luenendonk, 2017).

***Executive Information Systems (EIS)*:** also known as Executive Support System, this is a tool used for reporting enterprise-wide data to top executives. These systems provide quick and easy to use reports that are presented in graphical displays that are easy to compare (Obasan & Soyebo, 2012). They can be taken as specialized decision support systems because they provide information necessary to help improve the quality of decisions. Owing to the high expectations from such a system, these systems need to be highly individualized hence they are usually custom made for specific clients. They are also customizable to fit the specific needs of the client (Luenendonk, 2017).

Characteristics of Management Information Systems

For the optimal efficiency of MIS, various characteristics have been considered as important factors which include report with fixed and standard information. These reports are developed and implemented using information system personnel, including systems analysts and computer programmers, to require formal requests from users; and to produce scheduled and demanded reports. In addition, external data are used by the MIS while it is not captured by the organization (Asemi, Safari & Zavareh, 2011). Further, Das (2012) discussed the same area and claimed that an efficient MIS should contain the following characteristics; system capability, modularity, simple, transparency, instinctive, online capability; integration; and support from well-established and committed suppliers.

Management Information Systems in an Organization

Management information systems play a strategic role in the life of organizations, it provides the management with appropriate information and in the right place and time to help the management to do various functions of planning, organizing, directing and control and decision-making (Al-Najjar, 2010). Every business organization in this era needs management information system to keep track of all business activities. Managers cannot ignore management information systems because they play such a critical role in contemporary organizations (Nowduri & Al-Dossary, 2012). Today's systems directly affect how managers decide, plan, and manage their employees, and, increasingly, they shape what products are produced, and where, when, and how. Therefore, responsibility for systems cannot be delegated to technical decision makers.

Management information systems have become as integrated into our daily business activities as accounting, finance, operations management, marketing, human resource management, or any other major business function. Management information systems and technologies are vital components of successful businesses and organizations some would say they are business imperatives. They thus constitute an essential field of study in business administration and management, which is why most business majors include a course in management information systems (Ghadimie, Dehghanpour, Sohrabi & Soleyman, 2014).

Management information systems can help all kinds of businesses improve the efficiency and effectiveness of their business processes, managerial decision making, and workgroup collaboration, which strengthens their

competitive positions in rapidly changing marketplaces. Information technologies and systems are, quite simply, an essential ingredient for business success in today's dynamic global environment (Ghadimie *et al.,* 2014).

Importance of Management Information Systems to an Organization

Organizations use MIS for gathering and dispensing the information needed for making timely decisions. Computers are extensively employed by the executives to process so much information. They are used for storing, retrieving, extracting, and dispensing data. Computers provide technology support for the MIS used by organizations and systematically aid in detecting problems and in gathering relevant information. The MIS contains indicators that show the health of an organization, such as profits, cash flow, inventory levels, financial status, market behavior, productivity levels, schedules, and quality control. These indicators may be displayed as text, tables, graphs, or time series. Apart from the above general benefits that all enterprises can derive from MIS, organizations can use MIS to improve its core competence, enhance the supply chain management and provide quick responses to changing trends in the business (Amratunga, Baldry, Sarshar & Newton, 2012).

The effective use of MIS allows management to: get an overview of their entire operation; have the ability to get feedback about their performance; Organizations can maximize benefits from their investments by seeing what is working and what is not and results can be compared to planned performance by identifying strengths and weakness in both the plan and the performance. Moreover, companies can drive workflow improvements that result in better alignment of business processes to customer needs (Amratunga *et al.,* 2012).

There are many benefits that come with applying MIS. Some of these benefits help make work easier for management while the rest of them help the organization as a whole (Luenendonk, 2017). The following gives a summary of what an organization stands to gain from having implemented MIS: (i) All stakeholders in the company have access to one single database that holds all the data that will be needed in day to day operations. (ii) Employees and other stakeholders in the organization will be able to spend more time doing productive tasks. (iii) Management information systems bring the power of data processing tools that help significantly improve the quality of decisions made in the company. (iv) Owing to the flexibility that is brought by the use of mobile devices such as tablet computers and smart phones, Management Information Systems ensure that employees have easier and closer interaction with information about the progress of any process within the organization. (v) Inputs and modifications in these systems are logged and the authors noted. The time when the change has been made is also recorded for future reference. (vi) Management Information Systems help reduce the amount of paperwork that departments have to deal with thanks to the central database that's accessible from the company network. (vii) Reports make it easy for companies to easily identify their strengths and weaknesses in carrying out various tasks. (viii) From a top executive perspective, Management Information Systems help give an overall impression of where the company stands financially. (ix) Most Management Information Systems provide a channel for customers to collect and store vital data and feedback from customers. (x) Organization gains competitive advantage. (xi) MIS helps eliminate redundant and duplicated roles (Munene, Namusonge & Iravo, 2014).

The Roles of Management Information Systems in an Organization

The main role of Management Information Systems (MIS) is to report on business operations with the purpose of supporting decision making. This is to ensure that the organization is managed in a better and more efficient way so that it can be able to achieve full potential thus gain competitive advantage. A summary of roles played by MIS in an organization include:

(i) To provide information readily to company decision makers.

(ii) MIS also helps in data collection.

(iii) To promote collaboration in the workplace. In any large company, there are many situations that call for input from several individuals or departments before decisions can be made.

(iv) MIS enables executives to run what-if scenarios so that they can see how some of the important metrics in the business will be affected by a given decision. The data is presented in easy to understand reports and graphs that make interpretation easy.

(v) MIS gives accurate projections of the company's standing in the short and long term.

(vi) MIS helps track the implementation of particular decisions in a company.

(vii) To improve on the company's reporting (Laudon & Laudon, 2016).

The Steps Involved in the Development of MIS in Organizations

System Development Life Cycle (SDLC) is a conceptual model which includes policies and procedures for developing or altering systems throughout their life cycles. SDLC is a systematic approach which explicitly breaks down the activities into phases that are required to implement either new or modified

Information System. These activities are highly related and interdependent. An effective SDLC should result in a high-quality system that meets customer expectations, reaches completion within time and cost evaluations, and works effectively and efficiently in the current and planned Information Technology infrastructure.

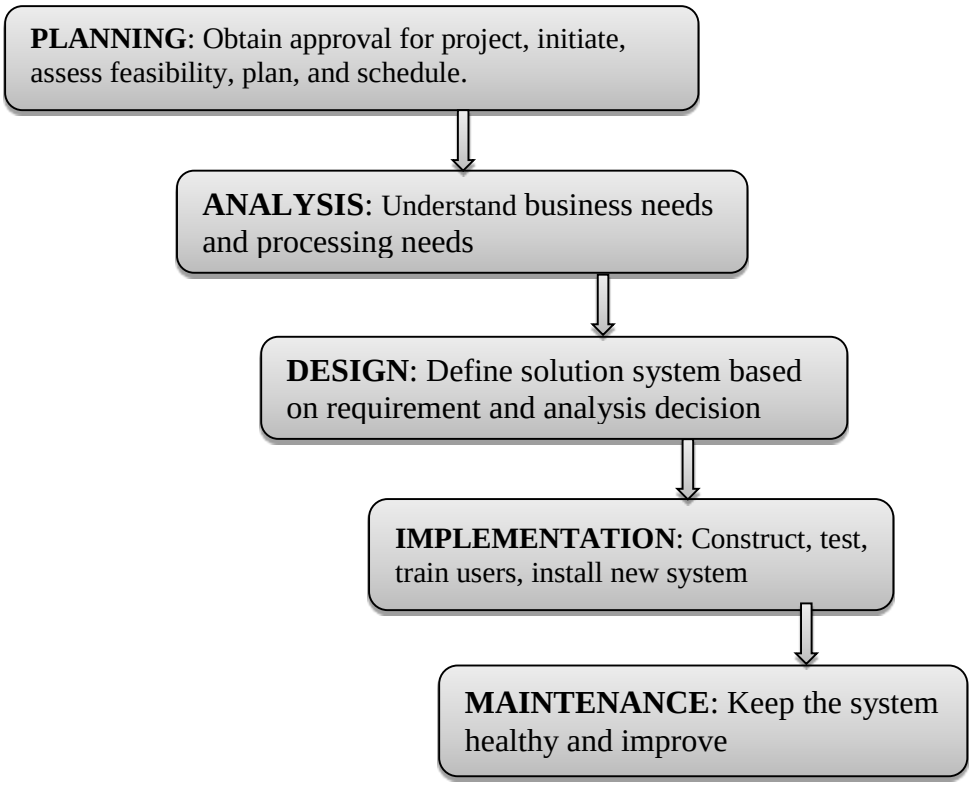

Figure 4: Information systems development life cycle

Source: Author's construct (2020)

The following activities are carried out under planning or feasibility study; problem definition and scope of existing system, overview the new system and determine its objectives, confirm project feasibility and produce the project schedule. During this phase, threats, constraints, integration and security of system are also considered and a feasibility report for the entire project is created at the end of this phase (Loudon & Loudon, 2010).

With respect to analysis and specification, it is obvious that data are collected, analysed and validated, define the requirements and prototypes for new system and evaluate the alternatives and prioritize the requirements. They also added that the analysis and specification phase examine the information needs of end-user and enhances the system goal, software requirement specification (SRS) document, which specifies the software, hardware, functional, and network requirements of the system is prepared at the end of this phase (Cabrera & Cabrera, 2015).

Loudon and Loudon (2010) have explain system design includes the design of application, network, databases, user interfaces, and system interfaces, transform the SRS document into logical structure, which contains detailed and complete set of specifications that can be implemented in a programming language and create a contingency, training, maintenance, and operation plan. They continued by saying that the system design also include review the proposed design, ensure that the final design must meet the requirements stated in SRS document and finally, prepare a design document which will be used during next phases.

Organizational Performance

Organizations perform various activities to accomplish their organizational objectives. It is repeatable activities that utilize processes for the organization to be successful that must be quantified in order to ascertain the level of performance and for management to make informed decisions on where, if needed, within the processes to initiate actions to improve performance. Therefore, it can be claimed that there is a close relationship between the organizational objective and the concept of organizational

performance (Jenatabadi, 2013). Thus, all companies probably attempt to achieve certain pre-determined objectives with the help of available resources. Hence, the two aspects of the concept, that is, the organizational objective, and the organizational inputs or resources can be considered in the definition of organizational performance (Cabrera & Cabrera, 2015).

According to Jenatabadi (2015), performance can be defined as the evaluation of the constituents that try to assess the capability and ability of a company in achieving the constituents' aspiration levels using efficiency, effectiveness, or social referent criteria. Effectiveness, refers to the maximum extent production functions are able to fulfil and meet the demands and requirements of the customer. Efficiency, on the other hand, is assessing and evaluating how the resources of an organization are economically utilized through the accomplishment of functions to achieve its objectives (Jenatabadi, 2015). Quantitatively, performance and the dimension of scale are interrelated, that is, it is generally quantifiable in different dimensions (Jenatabadi, 2015). Therefore, a well-designed performance management system is an essential and fundamental factor contributing to the enhancement of effective planning and control of management. In fact, it can be claimed that PM allows business management to excel through motivation enhancement, performance monitoring, improvement of communication, and problem diagnosis.

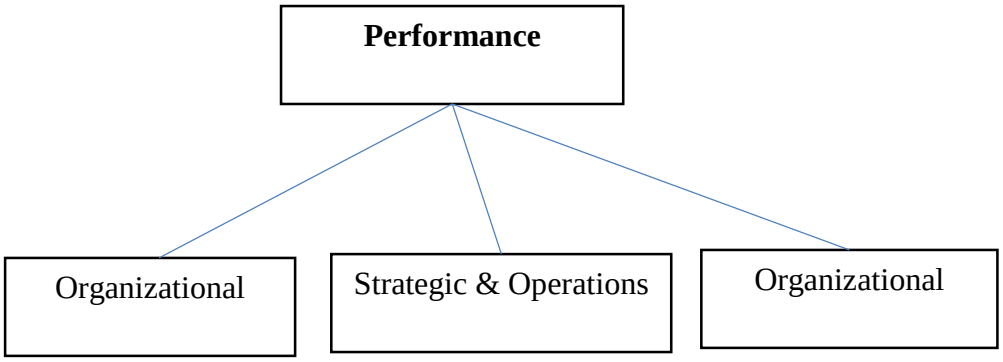

Figure 5: Aspects of Performance Concepts

Source: Author's construct (2020)

Organizational performance is one of the most important constructs in management research (Richard, Devinney, Yip & Johnson, 2009). Where organizational performance was and still is an endless research question with many studies considering it as their dependent construct. Organizational performance is the measure of progress of an organization, which is an analysis of the performance of the institution compared to the objectives. There are three performance levels within companies. These are classified as financial performance, work performance and organizational effectiveness, although the latter is later known as organizational performance. But many researchers express organizational performance as referring to an organization's index to measure its achievement (Hou, 2016).

According to Robbins and Coulter (2017), the common measures for organizational performance are organizational productivity and organizational effectiveness. Organizational performance is defined as an achievement of an organization measured by certain standards within a certain period of time (Wahda, 2017). Based on the above, the researcher sees the concept of organizational performance as the effort by an organization to achieve its

objectives. This includes four major perspectives, namely financial, customer, internal process and learning and growth.

Performance Measurement (PM)

Performance (PM) is defined as the process of transferring the complex reality of performance into a sequence of limited symbols that can be communicated and reproduced under similar circumstances (Jenatabadi, 2015). PM is a progressive language that classifies the current and future status of performance. PM allows a continuous advancement towards the established goals and identification of the stagnations and shortcomings. Concisely, it can be claimed that PM is a progressive and steady movement towards the achievement of the set objectives (Nalwoga & Van-Dijk, 2016). PM is also considered as a metric employed to measure performance. Therefore, it can be regarded as an analytical tool that records measures, shows outcomes, and determines subsequent actions in the process of the PM (Cabrera & Cabrera, 2015).

Measures of performance are divided into four categories, financial; non-financial; tangible like quality; or intangible like experience (Nalwoga & Van-Dijk, 2016). The focal point of financial performance measures is generally on the resulting impact on production activities and financial characteristics, such as logistics activities. Non-financial performance values, however, have their focal point directly on actual production activities, such as defect ration, investment turnover, and lead time (Jenatabadi, 2015).

Golicic and Smith (2013) in their study used financial market and operational. The findings of Koech and Namusonge (2012) explained that organizational performance was represented to the extent that business purposes

were achieved in the former financial year of the organization. Alsughayir (2014) further evaluated performance by comparing performance with competitors' performance in terms of organizational effectiveness, financial and business performance.

Moreover, non-financial performance measures are more beneficial in foreseeing future performance and simplifying the organization's performance. Non-financial performance measurement is a measure for establishment of non-financial indicators of a business (Nath & Badgujar, 2013). These measures focus on the long-term success and the qualitative aspects of a business. Therefore, it is essential that companies also be involved with non-financial performance measures to evaluate their intangible benefits. The evaluation of organizational performance was based on indicators of effort, satisfaction and effectiveness (Ejere & Abasilim, 2013).

However, the two categories of performance measures, financial & non-financial, have their own inherent merits and demerits (Oyewobi et al., 2016). Considering the limitations of each type of criterion and the multidimensional nature of performance, the use of multiple performance measures may provide a more accurate estimate of the true. Within this context, the balanced scorecard (BSC) approach can be used for the multi-dimensional analysis of performance measurement (Dincer *et al*., 2017).

To recognize the need to go beyond financial indexes, Ka proposed that BSC approach be used so that managers could track both financial and operational metrics to measure organizational performance at Harvard Business Review, where the greater strength of BSC compared to the other frameworks lies in their ability to link the performance between different classes of business

performance-financial and non-financial, internal and external (Valmohammadi & Ahmadi, 2015). BSC is one of the administrative practices most repeatedly used by large and small- and medium-sized organizations (Cooper, Ezzamel & Qu, 2017).

How MIS Contributes to Effectiveness of Operations of Organisations

The success of the management information systems can be achieved by analyzing its effect on results. Various authors consent with this concept and directly affirm that the goal of management information systems should be to obtain an improvement and enhancement in the firm's financial performance (Nath & Badgujar, 2013). For instance, authors say that management information systems should aid companies in taking more appropriate decisions or improving their comprehensive financial performance (Dopuch, 2013); the objective of management information systems is to enhance overall financial performance, not to obtain more precise costs; firms utilize innovation to obtain advantages that indirectly or directly impact economic performance indicators; or the primary objective of management information systems is to improve and enhance the potential role of the system in improving the firm's overall financial performance (Ranganathan & Kannabiran, 2014). Taken together, these findings, along with the conceptual model, have significant research and managerial implications.

Moreover, according to a study conducted by (Naranjo-Gil, 2019), Management information system has an influence on flexibility-based strategic performance and cost-based strategic performance, taking into account the decentralization of responsibilities, updating customer knowledge and customer participation in management, the cooperation with other units with the scope of

increasing the firm budget, and actualization and use of management information (Slotegraaf & Pauwels, 2018). According to their research combined with prior knowledge on management information systems, a study was made how different team compositions interact with a management information system, directly influencing strategic performances, focused on flexibility and the reduction of costs. The results exhibit how the effect of management information system on strategic performance is supervised and governed by top management team diversity. The extent to which the management information system is providing information that relates to possible future events, efficiency, output rates, information on the effect of various events, that also relate to the impact that the employee's decision has on the performance of other departments (Naranjo-Gil, 2019). Furthermore, greater management information system capability leads to a higher degree of strategic performance.

In a research conducted by Kirsch (2017), it is suggested that there is a direct link between behavior control, outcome control, clan control, self-control with firm performance, and with the moderating effect of the complexity risk. Krisch (2017) tried to determine whether the user anticipated the development team to follow an intelligible written series of steps toward the attainment of project goals or if the user presumed the development team to follow explained written system development rules. Furthermore, based on the data obtained from previous research on management information systems projects, behavior, outcome, and self-control are determined to be undoubtedly linked with the system performance of projects. However, complexity risk generates a mixed moderating effect on the relationship between control and performance. The

research model tried to determine if, in the presence of a high complexity risk, the impact of behavior and self-control on performance are low, whereas the effectiveness of outcome and clan control increases. Overall, there is an optimistic tone for control as an important causal driver for comprehensive performance (Kroenke *et al.*, 2010).

According to a study conducted by Qrunfleh and Tarafdar (2014), a connection between supply chain (SC) strategy and supply chain information systems (IS) strategy was examined, and its impact on supply chain performance and firm performance. The results also support the proposition that an organization's ability to use supply chain strategy to support its core competencies is dependent on management information systems' functional capabilities.

Prior research by Maiga and Jacobs (2013), the interface between management control and information technology is an underdeveloped research area with a knowledge gap concerning its implications for financial performance. The present research model analyzes the interaction effect of cost control systems and information technology integration on company financial performance. The conducted research showed that that while information technology integration and cost control systems hold no significant influence on plant financial performance, they do associate to positively influence manufacturing plant financial performance.

According to Wu and Lee (2017) their conceptual model emphasizes the link between top management support and information system performance, and Top management support proved to be a significant factor in determining the efficiency of the information system function in an organization and the

direct and indirect relations described in the model between top management support and IS performance were supported by the results. The variables that had a moderating effect on this relationship comprehended the structure of the information system, integration of the information system, current and future portfolios of the information systems and the different modes of information system management controls.

According to the research conducted by Liang, Saraf, Hu and Xue (2017) a link was established between sharing environmental management information with customers and suppliers and the overall comprehensive firm performance, which included environmental, cost and profit performance and the mediation effect of environmental munificence (Slotegraaf & Pauwels, 2018). The previous study highlighted the importance of information exchange with supply chain partners for achieving performance gains. Environmental management information contributes more to the long-term than to the short-term influences on overall firm performance, enhancing the comprehensive operational effectiveness.

Also, a study conducted by Huang, Lee and Wang (2018) hypothesized that information technology has an influence on overall environmental performance, taking into account the firm size and age, and also, he ownership structure. The model proposes that information technology also presents opportunities for firms to greening IT and/or increasing their efficiency of resource use. Information technology is viewed as a solution possibility for environmental management and sustainability by analyzing how IT influences environmental performance. The variables: IT technical infrastructure flexibility, personnel skills, business alignment and environmental management

integration all have an effect on comprehensive environmental performance (Ryals, 2015).

MIS enhances the quality of plants by providing appropriate information for quality decision–making. Due to an increase in the size and complexity of organizations, managers have lost personal contact with the scene of operations. MIS also changes the bigger amount of data into compiled form and thereby avoids the possible ambiguity that may arise when managers are swamped with detailed facts (Ryals, 2015). Decentralization of authority is possibly when there is a system for monitoring operations at lower levels. MIS is successfully used for measuring company performance and making a necessary change in the organizational plans and procedures. MIS links all decision centers in the organization, by facilitating the integration of specialized activities by retaining each department conscious of the requirements and issues of other departments. Management information system serves as a link between managerial planning and control and assembles, processes, stores, retrieves, evaluates and disseminates the information. It improves the capacity of management to analyze, assess and improve comprehensive company performance (Kroenke *et al.*, 2010).

Challenges Facing the Implementation of MIS in Educational Institutions

Organisations, the world over, have been running on technology including the education sector (Faris, 2019). Most individuals today interaction and internal process relies heavily on the computer systems that power everything. Management information systems (MIS) is a general term to encompass the various technologies that exist in organizations today, as well as the personnel necessary to manage it all (Faris, 2019).

In spite of the recent demand for MIS by most educational institutions, there are a number of challenges facing the design and implementation of MIS. These include; inadequate budgetary allocation, inadequate computers, insufficient human resource, inadequate space to house the IT equipment, commitment and loyalty of IT staff, software challenge, Internet connectivity, commitment from management, and resistance to change. Other challenges also include; Difficulties in alignment between business strategy, inability to implement the system strategy on time, difficulties of measuring benefits, expenses for changing to the new system, and lack of software and hardware budget (Almalki, Al-fleit & Zafar, 2017).

There are different challenges facing the implementation of MIS as identified by different authors. Almalki *et al.* (2017) has grouped the various challenges facing the implementation of MIS as discussed below.

Management Challenges

The information system has to provide an approach to work with the different issues and to be aware of all information management aspects. The management challenges include; lack of top management commitment to the strategy implementation, weak management roles in implementation, lack of top management support in creation and implementation of the system, changes/replace senior management, poor coordination and sharing of responsibilities, and lack of communication. According to a questionnaire developed by Lederer and Sethi (2013) they found that over half the respondents said the implementation issues is an extreme problem. It means that once the plan of IS strategy was developed, they need to persuade top management to approve the suggested systems development. Sometimes senior management

may lack to understand the purpose or may not trust of the IS strategies capability to carry it out. Therefore, recommends that executives should examine its responsibility to implementing the plan before also confirm the time and budget required to develop the ISS.

Some of the challenges facing management today are the need to align its information systems strategy and business strategy. Identification of the IS gap between where the organization is and where it wants to be in the future. The organization should develop a plan to solve the question "How will we get there?". Aaltonen and IkaÈvalko (2012) mentioned the problems faced the strategy implementation in general that is weak management roles in implementation. According to Master's Thesis by Kornkaew (2012), the implementation challenges can be divided down by effect type, and they can be categorized into some difficulties such as management issues including the operations of an organization such as budgeting, personnel, and general management.

According to Roodsaz and Behrooz (2013), they found Management obstacles one of the most factors such as lack of internal communication channels, weakness top managers support in the improvement of the information system. Therefore, there is a need for development an effective relation with senior executives in applying information system. Changes the top management staff and replacing them will reduce the concentrate and assistance to the system success.

Human Challenges

Human issues are the issues relating to every person in the company or organization (Aaltonen & IkaÈvalko, 2012). Human obstacles barriers are

stated by Wilson (2019) while he distributes a survey to 500 companies that implement IS strategy to rank the obstacles. The human challenges include; failure in employ professional persons, difficulties in employing suitable staff, lack of resources to participate in user education, changing needs of users, system inability to fulfill the expectations of users, and lack of knowledge of the people (employee) on the system.

The results showed that the challenges in the lack of resources to engage in user-education, inability in recruiting appropriate staff, and Inability to employ experts who suitably accomplish the information technology activities, the most reasons that caused ISS implementation failed. The obstacles of the ways that fulfill the expectations of users also one of the important challenges that may occur (Arvidsson, Holmström & Lyytinen, 2018). Lack of computer skill was equally identified as a key challenge and major difficulty to the development of IS. There is a lack of general computer skill amongst the employee of the organization. Most of the older employee displayed a lack of interest and willingness to learning computer skills which have a high negative impact on the operation of the organization (Ossai & Degoke, 2014).

Technical Challenges

Technical systems challenges are the issues relating to the hardware and software aspects of the information technologies (Aaltonen & IkaÈvalko, 2012). The technical challenges include; Difficulties in transforming and reconfiguring business process to suit with IT system, technical difficulties, lack of requirement for information system, and upgrading previous systems is a major challenge. Also, barriers that may exist such as telecommunications issues Wilson (2019). Another factor that was identified by Ossai et al. (2014) as a

challenge to IS development is infrastructures (hardware and software), also the difficulties of the migration from old to the new system or upgrading previous systems is a major challenge.

Environment Challenges

Organizational environment challenges are identified as factors which are less visible and uncontrollable environmental factors such as organizational culture, change, behavior, inadequate capabilities, poor coordination and distribution of responsibilities, competing for activities and unaligned organizational systems and resources (Aaltonen & IkaÈvalko, 2012). Other barriers that had a less importance were Existing Political conflicts, lacking a commitment to the strategy, middle and senior management attitude involving the interaction and direction of the organization executive, misunderstanding or confusion of the strategies and doubts about benefits (Wilson, 2019).

Time Challenges

Roodsaz et al. (2013) mentioned many factors may contribute to difficulties such as lack of proper analysis of time. Extend the time of planning or implementing the system may lead to canceling the whole project because the strategies might be modified in that period or changed in needs of users, this situation can do an inefficient project. Arvidsson et al. (2018) addressed the challenges facing the IS strategy implementation that is the ability to implement the system on the established time and with the less amount of risk. From the same vein, Ossai et al. (2014) reported that only 16% of all projects are delivered on time and within their budget.

Faris (2019) also identified a number of challenges facing the implementation of MIS in educational institution across the globe. Common

problems include failure to strategize, meeting organizational needs, hiring and retaining good employees, staying current and integrating all the technologies. Some the challenges she identified are grouped and discussed below:

Lack of Strategy

Many of the most common MIS issues can be traced back to a lack of a solid strategy. Information systems leaders are well aware of the many tools available to gather data on their network. But putting that information to use is often a challenge. At one time, technology departments served as a separate operation, providing tech support and keeping an organization's server equipment running. Today, MIS leadership often sits alongside other business leaders, working together to ensure that the technology being used supports the overall mission of the company moving forward (Faris, 2019)

Meeting Organizational Needs

MIS plays an ever-increasing role in organizations, with professionals relying on technology for every aspect of operations. Sales and marketing rely heavily on customer relationship software to track client interactions, for instance, while accounting needs its own software for billing, invoicing and financial tracking. With more than half of all companies now relying on big data analytics, MIS is playing an even more important role. Before making a decision, today's management teams are likely to pull reports on existing activity to ensure they use facts rather than make educated guesses (Faris, 2019).

Attracting and Retaining Top Talent

For at least the past couple decades, the growth in technology has outpaced the number of people entering the field. Over the past seven out of 10 years, IT positions have been in the top 10 of jobs with the most hiring

challenges, as documented by ManpowerGroup. The professionals most in demand include developers and programmers, database administrators and IT leaders and managers. Even as an increasing number of businesses shift to cloud software, the IT shortage continues to affect businesses. If cloud technology providers have difficulty finding professionals to support the applications their clients use, the businesses will see issues. Even with cloud technology, though, many organizations find they still need to have an MIS specialist on staff to ensure the business meets its goals (Faris, 2019).

Keeping Up with Change

If one thing is for certain in information technology, it's that nothing will remain the same for long. From one year to the next, innovations mean that software needs to be upgraded and even replaced. In order to remain competitive, businesses have to keep up with this, investing in software that will give them an edge. As businesses respond to those changes, though, they face a challenge in getting employees on board with adjusting what they do. At one time this was simply training employees to go from old paper-based processes to using computers in the first place. Today, managers have to onboard new systems while ensuring they provide employees what they need to be productive (Faris, 2019).

Integrating New Technologies

Although there are plenty of comprehensive solutions, businesses will inevitably find that they have multiple types of software operating at once. This includes general administrative tools like Microsoft Office, as well as specialized tools for accounting, customer relationship management and project-management tools, among many others. Ensuring all these tools work

together is essential since otherwise, employees will find they have to duplicate processes (Faris, 2019).

Complicating matters is the fact that employees no longer work using just one dedicated computer on a desk in an office space. Many employees work in the field, using laptops and tablets. You'll also have numerous cellphones in addition to the laptop and desktop computers your employees use, bringing challenges to providing support without risking security (Faris, 2019).

Empirical Literature Review

The empirical review was based on the relationship between MIS and organizational performance, and the work of authors such as Kehinde and Yusuf (2012), Munirat (2014), Osodo and Jemaiyo (2015), Al-Mamary *et al.* (2015) and many others were reviewed. The study by Kehinde and Yusuf (2012) investigated the role of MIS as a catalyst to organizational performance in the 21st century. A structured questionnaire was distributed to 60 selected employees of three selected Banks in Nigeria including the Intercontinental Bank for purpose of analyzing the collected data, using the descriptive and regression method of statistical analysis. The outcome of the study indicated that MIS is very important to an organization because no organization can survive, expand and attain significant development without information particularly in the banking sectors in the 21st Century.

In a similar study, Al-Mamary *et al.* (2014) determined the relations between management information systems and organizational performance. Their findings revealed that, MIS is one of the most significant accomplishments in the area of managerial business, which seeks to supply reliable, exact, relevant and complete information to directors towards

increasing the organizational performance in firms. Also, MIS assists the functioning and monitoring of a company. Furthermore, it depicts the elements and resources to guarantee the valid functioning of a firm.

Al-Mamary *et al.* (2015) also carried out a study which focused on the factors that lead to the successful adoption of MIS in Yemeni firms. The study also examined the relationship between MIS which involves technological factors (system quality, information quality, and service quality), organizational factors (top management support, and user training), and people factors (computer self-efficacy, and user experience) and organizational performance. The study revealed that there is a significantly linked relationship between system quality, information quality, service quality, top management support, user training, computer self-efficacy, and user experience with organizational performance.

A study by Ndlovu (2015) depicted the term of MIS in measuring organizational performance in government organizations. A case study method was applied to examine the study problem. Face-to-face interviews and self-administered questionnaires were utilized to gather the data. The study concluded that the function of MIS in measuring organizational performance was limited in the KwaZulu-Natal Department of Arts and Culture. The major reason for this is because the firms do not have an integrated MIS or adequate capacity to improve and run such a system. Therefore, this study recommended that there is a necessity to build adequate capacity in order to fully implement MIS.

Related study by Khresat (2015) examined the relationship between MIS that involves (software, devices, and databases) and organizational

performance in Jordan. The population of the study covered all telecommunication organizations in the bottling Company which has led to a decrease in the effect of MIS on the performance of the company. Therefore, the study recommended that organizations should appreciate and invest seriously in MIS, through adequate training and retraining programmers in MIS.

It can be deduced from the above review that management information systems is important to control performance, it provides feedback that can be monitored and evaluated to determine whether the system meets specific criteria. It can also be said that a good information system is one that is adjustable so that appropriate information is produced and provided to end users. To achieve high performance from MIS, requires that individual system performance measures should be relevant to the organization's objectives, and people and systems should work together to ensure desirable outcomes.

As in Chin-Fu (2016) he developed a model for a strategic alignment between manufacturing and IT departments with multiple stages to overcome the difficulties associated with IT implementation in manufacturing organizations. He highlighted the strategic change nature that the organization must understand through the proposed model to reach to the successful implementation. Also, suggested working as an assistant to the managers in identifying challenges and managing IT while perceiving it as a strategic resource. In the same direction Salmela and Spill (2012) also proposed a model named (four cycle method) that divided the planning period into four different cycles, composed of comprehensive, incremental IS planning processes in one model with a continuous process to encounter emerging circumstance, enabling the evaluation and reformulation of the plans. While for identified and

investigated the development and implementation of the ISS in the small and medium companies.

Wynn (2018) study was conducted through a qualitative research in 8 organizations using Earl three models for strategy development to assess the development and implementation of the IS strategy in each company. The finding shows that all three Earl models have proved its success in implementing companies, no one outperformed the other in term of the performance. Also, indicated that the determination of the best approach for one company should depend on its circumstances. The study concludes with recommending the other small and medium companies to utilized finding of the survey to work the same way to develop their IS strategies, adopting mid to long term IS approach and aligning it to the business plans.

On the other hand, there are vital of researchers discussed the challenges faced the implementation of the information systems in different sectors including management information systems (Kornkaew, 2012; Badragheh, Chizari & Jamal, 2010) and Health and hospital information systems (HIS) (Khalifa, 2014; Jørgen, Bansler & Erling, 2017). In the field of MIS, Badragheh et al. (2010), examine the challenges of applying IS in the agricultural extension and education organization in Iran through assessing a multiple factors through interviews and surveys, including management obstacles, technical and sub-structural obstacles, organizational culture obstacles, educational and others, results find that the management was most important factor regarding the challenges in applying MIS.

In the same area of research, Kornkaew's (2012) master thesis examined the challenges and success factor associated with implementing MIS. They

utilized a case study of Fenix system, along with the impact and consequences of the MIS implementation on the organizations. The information was collected from the internal document in Fenix and by interviewing people involved. The main challenges in their results were administration, management and people problems. Their main finding was that the implementation of MIS project should take place with more concentrate on the project team, another finding was explained that most business process affected by implementing the MIS were those who have the changing nature as routines, instance jobs, and so on. Moreover, in HIS, the human and technical factors in Saudi Arabia may work as an obstacle in implementing of ISS also, to train the users to deal with the system.

Khalifa (2014) conducted a study for the purpose of evaluating those two factors in two Saudi hospitals (private and government) implementing HIS to improve HIS in Saudi Arabia and developing countries by providing plans to overcome the challenges. Lack of software and hardware updates which slowing their performance highlighted as some most technical difficulties. Furthermore, the human challenge, motivation, knowledge, experience, and learning or training the health professionals on the use of HIS were the core challenge regarding applying HIS in Saudi Arabia. The difficulties and concerns were affected the government hospital more than private, regarding the old systems, and lack of professional experience. To improve HIS implementation, the study recommended adding HIS training course to the under and postgraduates' medical students to increase their awareness, also to improve the hardware and software through continues updates, enhancing the system usability through various ways.

Jørgen *et al.* (2017) investigate the issues raised in the pilot implementation of HIS, which is used to examine the design and implementation of the new HIS before its actual development. On the other hand, the study depends on a use case of failed pilot implementation of Electronic Pregnancy Record (EPR) in Denmark. They discussed major failure reasons which are the inability to defined the scope, failure to deal with the new technical problems, lack of users and managers commitment, they concluded with the importance of the pilot implementation in implementing HIS, although of the difficulty associated with it.

From the side of the Information Systems strategies implementation challenges, Wilson (2019) studied the aims and barriers to successful implementing information systems strategies particularly in financial sectors of UK companies that applying ISS to view to which extent UK companies adopt the strategies of the information systems development with another objective regarding the IS strategy implementation aspects. He conducted his study through interviews and questionnaire containing questions about the strategy implementation. His findings proved the successful implementation of ISS in the UK companies that examined in the study, resulted with 59% view their strategy success as reasonably successful, and by ranking companies with Time 500 rank. The results showed the companies with rank less than 300 appear to be more satisfying with their strategies than companies on the upper rank. The respondents asked to rank many factors in the study, the ranked of obstacles vary between the setting up strategy, and its implementation, measuring benefit appear to be the most challenge when setting up the strategy, and difficulty in

recruiting the suitable staff as a most challenge on the stage of the strategy implementation.

Yeh *et al.* (2012) conducted an empirical analysis to examined the impact of the information systems capability on the e-business information system and how IT strategy implementation will affect the business performance through a survey distributed to the chief information officer in 1000 companies in Taiwan. However, leadership and IT resources allocation capabilities appear to be the most capabilities affected the implementation of the IT strategy at the individual level, while in the group level capability, collaboration and knowledge sharing capabilities were the most affected IS capabilities. Finally, the system development and team management capacities were the most impacted in the organizational capabilities.

Chapter Summary

The chapter discussed both theoretical and empirical literature on the effects of management information systems (MIS) on organizational performance. Educational institutions care organizations depend greatly on a professional work force that is involved in defining its mission and carrying out its strategy. As such organizations become increasingly concerned with their effectiveness, they must pay attention to employee performance. The main challenges lie in developing appropriate MIS to coordinate their activities and to enhance performance. This paper has suggested that performance is improved when the organisation has a functional MIS, goals are set and timely feedback is given. The discussion of the literature covers areas such as; employees' perception of the theoretical framework of MIS, conceptual framework of MIS and the review of related studies. The literature review also

identified gaps in existing literature in which the present study intended to address.

CHAPTER THREE

RESEARCH METHODS

Introduction

This chapter focuses on the choice of research design, study area, population, sampling procedure, research model and the research instrument which are the underlying foundations for the conduct of the entire study. It also examines the techniques adopted for data collection, data processing and analysis. Finally, the chapter discusses the trustworthiness of the research with respect to validity and reliability.

Research Design

The study adopted a descriptive survey design since the study intended to gather quantitative data from the respondents. This study is more issue-oriented and focuses on the use of descriptive survey research designs and a gap analysis for achieving its purpose. In this study, the research objectives were formulated based on the steps adopted and data collected in order to resolve the problem statement. Using a gap analysis, the information requirements of Management of the organization were first analyzed, followed by an analysis of the existing management information system in the light of the informational needs. Finally, an analysis of the difference between the exiting and desired situations were made mainly on the results of the gap analysis, and recommendations made on how to minimize this gap and make the MIS in place robust.

Study Area

The Ghana Catholic Bishops' Conference (GCBC) conceived the idea of establishing CUCG in 1997. The Catholic University College received its

certificate of incorporation on 17th August, 2001. The first batch of fifty (50) pioneer students of the Catholic University College reported at the Pastoral Centre of the Sunyani Catholic Diocese on 3rd March, 2003.

The CUCG officially commenced lectures on 10th March, 2003 in three Faculties: Economics and Business Administration; Religious Studies; and Information Communication Sciences and Technology. The degree programmes the University started were BSc. ICST, BSc. Economics and Business Administration, and BA Religious Studies. The vision of the university is to create a unique university that can make a distinctive contribution to national development as an institution of academic and technical excellence, whose products are endowed with real practical ability, a moral vision of life and a profound religious motivation for service in all spheres of life. The university is located at Fiapre near Sunyani in the Bono region.

Population

Population of a study is the elements or people to be studied and from whom data is obtained. According to Amedahe and Gyimah (2016), population is a group of individuals' persons, objects, or items or entire aggregation of cases that meet a designated set of criteria. The target population of the study was management and non-management staff of CUCG. The population for the study was 125 employees.

Sample and Sampling Procedure

The nature of the study necessitated the use of purposive sampling technique for selecting respondents. Using the current staff population of the University (125), a total of 95 staff were selected for the study. In determining the sample size, the single proportion rate formula by De-Vaus (2002) was

used. With a confidence level of 95% and a margin of error (a) of 5%, the result for the sample size is as follows: n = $\frac{N}{1+N(a^2)}$

$$n = \frac{N}{1 + N(a)^2}$$

Where; n = *sample size*; N = *Sampling Frame;* 1 = *Constant; and* a = *Margin of error*

$$n = \frac{125}{1 + 125(0.05)^2}$$

$$n = \frac{125}{1 + 0.3125}$$

$$n = \frac{125}{1.3125}$$

$$= \underline{95.24} \quad \approx \underline{95}$$

The purposive sampling technique involves selecting a sample in accordance with the objectives that the researcher seeks to attain. This sampling technique was used because specific members of the management that makes extensive use of information provided by the ICT unit needed to be selected for the study. In addition, the head of MIS/ICT for instance had to be sampled for this study to respond to certain questions that pertain to the current MIS of the organization. The rest of the staff and students were selected using the simple random technique. The total number of employees and students were obtained from the human resource department and finance office respectively using the picking without replacement.

Research Instrument

The study used primary data. The key instrument for the data collection was structured questionnaire. The questionnaire was designed based on the variables in the research objectives and the literature review. The questionnaire

included four broad types of questions. Section (A) aimed at collecting the demographic information of respondents (sex, age, and education). Section (B) included 22 questions that were related to the current state of management information practices in CUCG. The model by Delone and McLean (1992) on information systems success and the updated version by Delone and McLean, (2003) was used to the MIS indicators, namely system quality, information quality, user satisfaction and net benefits. Section (C) included 18 questions that were related to organizational performance. Finally, Section (D) which included 9 questions that were related to MIS challenges in CUCG. The five (5) Likert scale was used from 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, and 5 = strongly agree.

Validity and Reliability of Instruments

Reliability is the degree to which the results obtained by a measurement and procedure can be replicated so that the result of test items scores is the same upon several measures and validity is how measurement measures what it actually seeks to measure (Taherdoost, 2016). The study employed face and content validity ways of accessing questionnaire validity. The researcher first allowed expert to look at the items in the questionnaire and agree that the test was a valid measure of the concept being measured just on the face of it. After face validity was achieved, the researcher proceeded to access the questionnaires content validity by allowing, specialist or expects familiar to the constructs to independently review all questionnaires items to their level of agreement and concluded which items should be included in the final questionnaire. Reliability of questionnaires items was established using a pilot tested by collecting data from subjects not included in the sample. Data

collected from pilot tested were analyzed to test the reliability of internal consistency.

The researcher made used of six factors of at least 3 items for each to assess the current state of management information systems (MIS) practices in CUCG, four factors of at least 4 items for each to examine how MIS contributes to the effective operations of CUCG and 9 items in assessing the challenges facing the implementation of an integrated MIS in CUCG. The reliability Cronbach's alpha value for all the test items with respect to their constructs they sought to determine are shown in the table below after presenting with 6 respondents to assess the reliability of the questionnaires before the research main study. The Cronbach's alpha of all the items was 0.994 indicating their internal consistency.

Table 1: Reliability and Validity Test

Constructs	No. of Items	Cronbach's alpha (α)
Information and Information System (General)	3	0.873
System Quality	6	0.800
System Usage	3	0.873
Information Quality	4	0.800
User Satisfaction	3	0.789
Service Quality	3	0.918
MIS and Operational Cost Reduction	5	0.789
MIS and Management/Senate Decision Making	4	0.789
MIS and Performance	3	0.800
MIS and Financial Management	6	0.800
Challenges Facing the Implementation of MIS in CUCG	9	0.789

Source: Field data (2020)

Data Collection Procedures

In this study, quantitative technique was conducted in order to collect data. Questionnaire was sent personally to the respondents in order to afford the researcher the opportunity to establish rapport them. The respondents were assured of confidentiality of the information they provided. The data collection was done within a period of 4 weeks.

Data Processing and Analysis

Data was analyzed after all data was gathered. Statistical Product for Service Solution (SPSS) Version 23.0 Software and Microsoft Excel (2016 package) were used for the analysis of the data obtained from respondents. The questionnaires were coded by assigning unique numbers to the questions and each response. The SPSS worksheet was designed based on the coded questionnaire. The data were then entered into the worksheets based on the assigned codes and then subjected to statistical analysis to provide the information needed for discussion. The data were analyzed using descriptive statistics, frequencies, percentages, mean and standard deviation, tables and pie charts as well as multiple regressions to test the hypothesis.

Ethical Consideration

The researcher followed the general guidelines for designing questionnaire to produce a simple, attractive and standardized data collection tool that would answer the study questions. The researcher obtained a cover letter from the Faculty of Economic and Business Administration and the questionnaire itself. The cover letter clarified to the respondents the major objective of the survey while emphasizing the confidentiality of their answers.

Again, respondents were assured that data collected would be limited to academic purposes.

Chapter Summary

The chapter described the methodology that was used to conduct the research work. The study design was descriptive survey. The population of the study comprised staff of CUCG. A sample of size of 95 respondents was selected through purposive sampling technique. The data collection instrument (questionnaire) was pre-tested prior to the main questionnaire administration to the study participants. Finally, data analysis methods used in the study was discussed which paved the way for research findings which were presented and discussed in chapter four. The unwillingness of some respondents created an initial challenge in the data collection process. This however was effectively managed.

CHAPTER FOUR

RESULTS AND DISCUSSION

Introduction

This chapter presents the findings and discusses them in the light of the research questions that guided this study. The specific objectives of the study were to assess the current state of Management Information Systems (MIS) practices in CUCG, examine how MIS contributes to the effectiveness of operations in CUCG and identify the challenges confronting the implementation of MIS in CUCG. The data used in the research were obtained through the administering of structured questionnaire. The chapter begins with the background characteristics of respondents, followed by sections that answer the research questions of the study.

Background Characteristics of Respondents

This section discusses the socio-demography characteristics of the respondents. The variables were sex, age and educational qualification.

Table 2: Background Characteristics of Respondents

Variable	Response	Frequency	Percentage (%)
Sex	Male	59	62.1
	Female	36	37.9
	Total	95	100.00
Age	31-40	49	51.6
	41-50	22	23.2
	51-60	16	16.8
	Above 60	8	8.4
	Total	95	100.0
Educational Qualification	Bachelor's Degree	34	35.8
	Master's Degree	37	38.9
	Doctorate/PhD	24	25.3
	Total	195	100.0

Source: Field data (2020)

Analysis of sex of respondents as shown in Table 2 revealed that out of a total sample size of 95, 59(representing 62.1% of the respondents) were males while 36 (representing 38% of the respondents) were females, which is a clear case of sex imbalance of the respondents. On age distribution of the respondents, the majority of the respondents aged 31-40 years were 49 (representing 51.6% of the respondents) followed by those within the age bracket of 41-50 which was 22 (representing 23.2% of the respondents). This means that majority of the respondents were relatively young and they may have a fair understanding of how management information system functions, with the age bracket

Educational characteristics of respondents in Table 2 indicated that 37 respondents representing 38.9% had master's degree, 34 of the respondents representing 35.8% had bachelor's degree and 24 respondents representing 25.3% had doctorate.

Current State of MIS Practices in CUCG

To assess the current state of Management Information Systems in the University, the respondents were asked to rate their levels of agreement using a likert scale questions of 1-5 on measurements of management information system indicators namely; system quality, service quality, information quality, user satisfaction and system usage with 1 showing least rating and 5 showing strong rating. For analysis purposes, the mean and standard deviation of the responses given by the respondents were computed. These were analyzed with mean ranks as shown in Table 3. The mean score closer to 4 and above were interpreted as agreement, those closer to 2 and below were interpreted as disagreement, whereas those equal to or closer to 3 were neutral.

Table 3: Assessing Current State of MIS Practices in CUCG

Variables	Mean	S.D
The University employs that use of MIS	4.080	1.114
The University manages its data using computerization or digital systems	3.733	1.072
The University has a policy on ICT to guide its operations	2.960	1.236
Information systems used by the University is accessible	3.047	1.195
The MIS features are easy to learn and understand	2.793	1.322
The MIS of the University response time is fast	2.507	1.079
The MIS is flexible with user friendly interfaces	2.933	1.213
The MIS is integrated (across faculties & departments)	2.327	0.863
Systems used by the University is reliable	3.053	1.054
I utilize the capabilities of the information system in my job	3.067	1.267
I use the University's information system appropriately	3.113	1.196
Staff and students utilize the capabilities of the information system extensively	2.947	1.257
Reports from the information systems are complete and accurate	3.067	1.079
The outputs the Information Systems generate are clear	3.100	1.104
All the necessary reports are presented at the right time	2.813	1.167
Reports from the systems are comprehensible and usable	3.240	1.133
I am satisfied with the information system reports	2.700	0.968
I am satisfied with the IT team support	3.080	1.156
Users are given the needed training to use the information systems	2.533	1.014
ICT Support Team has the technical competence	3.260	1.212
ICT Support Team is responsive and reliable	3.227	1.249
ICT Support Team provides support for the system	2.960	1.346
Grand Mean	3.025	1.150

NB: Mean<2.50 = disagreed; and Mean>2.50 =agreed.

Source: Field data (2020)

Results as shown in Table 3 indicate that Information is a vital resource to the University was rated the most highly agreed. It obtained a mean score of 4.080, indicates that respondents agreed to the item and a standard deviation of 1.114also revealed minimal divergence of views expressed by the respondents. Information can be best managed by computerization or digital systems was rated the second most highly agreed item. It recorded a mean score of 3.733,

indicated that respondent agreed to the item and a standard deviation of 1.072 which revealed homogeneity of views expressed by the respondents.

Again, ICT Support Team has the technical competence was rated third. Rating on the scale showed that respondents' views were neutral as it obtained a mean of 3.260 and standard deviation of 1.212 also showed homogeneity of views of respondents. Also, Reports from the systems are comprehensible and usable was rated the fourth showed neutral in the views of the respondents since it was closed to 3. It recorded a mean score of 3.240. Standard deviation value was 1.133 which showed high variability of views shared by respondents. ICT Support Team is responsive and reliable was considered the fifth item. It recorded a mean value of 3.227 which signified neutral. The standard deviation mark was 1.249 which also showed high variability of views expressed by the respondents.

Also, I use the University's information system appropriately was rated sixth with mean value of 3.113. It recorded a standard deviation mark 1.196 which revealed minimal divergence of views of respondents on the item. The outputs the Information Systems generate are clear was also considered seventh with mean value of 3.100. Standard deviation mark recorded was 1.104 which showed homogeneity of the views expressed by respondents. Again, I am satisfied with the IT team support was seen as the eighth variable on the measured scale factor. Rating on the scale showed that it obtained a mean score of 3.080 and standard deviation of 1.156 which demonstrated that respondents' views were again neutral and had similar views on the measured variable. I utilize the capabilities of the information system in my job was identified as the ninth item on the scale with a mean value of 3.067 which indicated that the

respondents' views were still neutral on the item. It had a standard deviation of 1.267 which indicated homogeneity of respondents' views.

Reports from the information systems are complete and accurate was rated tenth with mean score of 3.067 and a standard deviation of 1.079. Systems used by the University are reliable was the eleventh item on the measure scale. It recorded a mean score of 3.053 which showed neutral in the views of the respondents since it was closed to 3. It obtained a standard deviation value of 1.054 which showed homogeneity of the views of respondents. Systems used by the University is reliable was the eleventh item on the measure scale. It recorded a mean score of 3.053 which showed neutral per the views of the respondents since it was closed to 3. It obtained a standard deviation value of 1.054 which showed homogeneity of the views of respondents.

Information systems used by the University is accessible was the twelfth item on the measured scale with a mean score of 3.047 and showed neutral per the views of the respondents. It obtained a standard deviation value of 1.195 which showed homogeneity of the views of respondents. The University has a policy on ICT to guide its operations was the thirteenth item on the measured scale with a mean score of 2.96and a standard deviation value of 1.236 which showed a disagreement and close divergence of views expressed by the respondents.

ICT Support Team provides support for the system was the fourteenth item on the measured scale with a mean score of 2.96 and a standard deviation value of 1.346 which showed a disagreement and close divergence of views expressed by respondents respectively. Staff & students utilize the capabilities of the information system extensively was the fourteenth item on the measured

scale with a mean score of 2.947and a standard deviation value of 1.257 which showed a disagreement and close divergence of views expressed by respondents respectively. The systems are flexible with user friendly interfaces was the fifteenth item on the measured scale with a mean score of 2.933 and a standard deviation value of 1.213 which therefore showed a neutral and close divergence of views expressed by respondents respectively.

All the necessary reports are presented at the right time was the sixteenth item on the measured scale with a mean score of 2.218 and a standard deviation value of 1.167 which therefore showed a disagreement and close divergence of view expressed by respondents respectively. The system's features are easy to learn and understand was the seventeenth item on the measured scale with a mean score of 2.793 and a standard deviation value of 1.322 which therefore showed a disagreement and close divergence of views shared by respondents respectively. I am satisfied with the information system reports was the eighteenth item on the measured scale with a mean score of 2.7 which showed a disagreement per the views of the respondents. It obtained a standard deviation value of 0.968 which revealed close divergence of views expressed by the respondents.

Users are given the needed training to use the information systems was the nineteenth item on the measured scale with a mean score of 2.533 and a standard deviation value of 1.014 which therefore showed a disagreement and divergence of the views of respondents respectively. The systems' response time is fast was the twentieth item on the measured scale with a mean score of 2.507 and a standard deviation value of 1.079 which therefore showed a disagreement and divergence of the views of respondents respectively. The

systems are integrated (across faculties & departments) was the twenty-first item on the measured scale with a mean score of 2.327 which showed a disagreement per the views of the respondents. It obtained a standard deviation value of 0.863 which therefore which revealed minimal divergence of views expressed by the respondents.

The grand mean and standard deviation were 3.025 and 1.150 respectively, indicates mid-way rating in assessing the current management information system in CUCG.

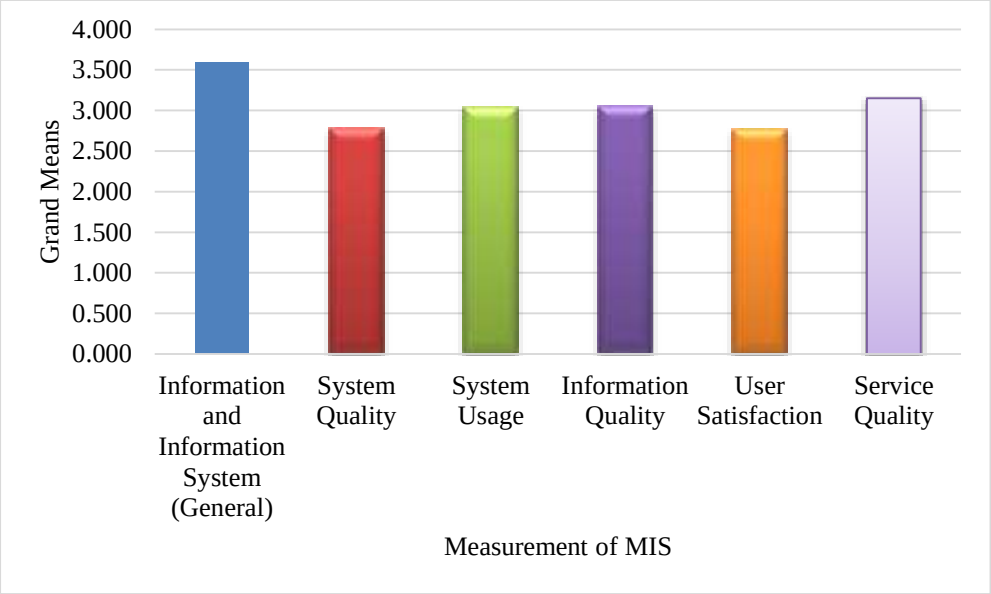

Figure 6: Measurement of the MIS practices in CUCG

Source: Field data (2020)

The Figure 6 shows that there were six major MIS indicators identified for this study. These MIS indicators are information and information systems (general), system usage, information quality, service quality, user satisfaction and system quality. Results indicated that only information and information systems (general) positively influence organizational performance of CUG. Lastly, respondents were asked to rate the current management information systems at CUCG and the results are shown in Figure 7.

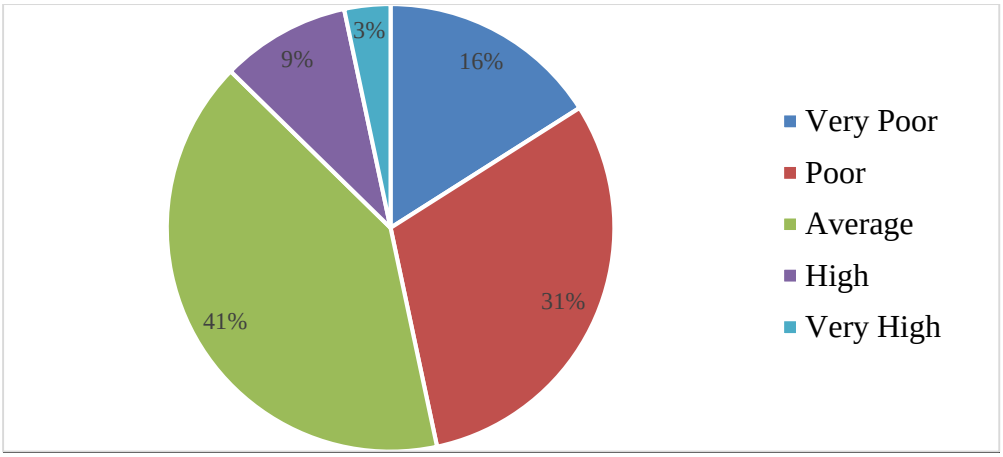

Figure 7: Rating of MIS usage in CUCG

Source: Field data (2020)

Analysis of the existing MIS in CUCG as shown in Figure 7 demonstrates that majority of the respondents 84 (representing 88.4%) rated the existing MIS either average or below average, and the remaining 11 respondents (representing 11.6%) rated the existing MIS high.

How MIS Contributes to the Effectiveness of the Operations of CUCG

To assess the effect of management information system on the performance of CUCG, respondents were asked to rate their levels of agreement using a likert scale questions of 1-5 on measurement scales namely; MIS and Operational Cost Reduction, MIS and Management Decision-Making, MIS and Performance, and finally MIS and Financial Management with 1 showing least rating and 5 showing strong rating. For analysis purposes, the mean and standard deviation of the responses given by the respondents were computed as shown in Table 4. These were analyzed with mean ranks. The mean score closer to 4 and above were interpreted as agreement, those closer to 2 and below were interpreted as disagreement, whereas those equal to or closer to 3 were neutral.

Table 4: MIS Contribution to the Effective Operations of CUCG

Variables	Mean	S.D
MIS helps the University to save money through improved work processes	3.680	1.353
MIS has reduced the manpower requirements of the University.	3.480	1.314
MIS gives the University a competitive advantage.	3.840	1.204
MIS has helped suppliers and students reduce costs of doing business with the University	3.740	1.250
MIS helps the University to create a positive difference between its products/services & the competitors' products/services.	3.727	1.164
MIS is used to make decisions and solve problems	3.787	0.987
MIS serves as an appropriate tool for coordinating the works of two or more units	4.173	0.663
MIS has helped in monitoring units'/departments'/faculties' effectiveness in CUCG	3.993	0.823
MIS ensures compliance and commitment to rules	4.167	0.689
MIS is used to measure the performance quality of faculties/departments/units	3.740	0.993
MIS is used to regularly measure staff performance	3.707	0.879
MIS helps in staff training and development in CUCG	3.813	0.900
MIS helps financial reports to publish regularly and available for review	3.913	0.955
MIS helps in the analysis of historical and current financial activities in CUCG.	4.307	0.463
MIS is used to integrate financial and operational information from multiple sources into a single system in CUCG.	4.047	0.727
MIS provides easy access to data for both financial and non-financial users in CUCG.	4.207	0.735
MIS makes financial data immediately available to shorten analysis turnover time in CUCG.	4.164	0.701
MIS is used to monitor and control the use of funds over time in CUCG	4.100	0.683
Grand Mean	3.921	0.916

NB: Mean<2.50 = disagreed; and Mean>2.50 =agreed.

Source: Field data (2020)

Results as shown in Table 4 indicate that MIS helps in the analysis of historical and current financial activities was rated the most highly agreed. It

obtained a mean score of 4.307, indicates that respondents agreed to the item and a standard deviation of 0.463 which revealed minimal divergence of views expressed by the respondents. MIS provides easy access to data for both financial and non-financial users was rated the second most highly agreed item. It recorded a mean score of 4.207, indicated that respondent agreed to the item and a standard deviation of 0.735 which revealed homogeneity of views expressed by the respondents. Robbery

Again, MIS is an appropriate tool for coordinating the works of two or more units was rated third. Rating on the scale showed that respondents highly agreed to the item. It obtained a mean of 4.173 and standard deviation of 0.663 also showed homogeneity of views of respondents. Also, MIS is capable of ensuring compliance and commitment to rules was rated the fourth. It revealed that respondents agreed to the item. It recorded a mean score of 4.167. Standard deviation value was 0.689 which illustrated homogeneity of views shared by respondents. MIS makes financial data immediately available to shorten analysis turnover time was considered the fifth item. It recorded a mean score of 4.164. Standard deviation value was 0.701 which demonstrated minimal divergence of views shared by respondents.

Also, MIS can be used to monitor and control the use of funds over time was rated sixth with mean value of 4.1. It recorded a standard deviation mark 0.683 which revealed minimal divergence of views of respondents on the item. MIS can be used to integrate financial and operational information from multiple sources into a single system was also considered seventh with mean value of 4.047. Standard deviation mark recorded was 0.727 which showed minimal divergence of the views expressed by respondents. MIS has the

capacity of monitoring units'/departments'/faculties' effectiveness was seen as the eighth variable on the measured scale factor. Rating on the scale showed that it obtained a mean score of 3.993 and standard deviation of 0.823 which demonstrated close variability of views expressed by respondents.

Further, MIS can help financial reports to be published regularly and available for review was identified as the ninth item on the scale with a mean value of 3.913 and a standard deviation of 0.955 which indicated homogeneity of respondents' views. MIS can give the University a competitive advantage was rated tenth with mean score of 3.84 and a standard deviation of 1.204 indicated homogeneity of respondents' views. MIS help in staff training and development was rated eleventh with mean score of 3.813 and a standard deviation of 0.9 indicated homogeneity of respondents' views. MIS can be used to make decisions and solve problems was the twelfth item on the measured scale. It recorded a mean score of 3.787 which showed agreed in the views of the respondents since it was closed to 4. It obtained a standard deviation value of 0.897 which showed homogeneity of the views of respondents. MIS has the capacity to help suppliers and students reduce costs of doing business with the University was the thirteenth item on the measured scale with a mean score of 3.74 and a standard deviation value of 1.25 which demonstrated homogeneity of views expressed by the respondents.

MIS can be used to measure the performance quality of faculties or departments or units was the fourteenth item on the measured scale with a mean score of 3.74 and a standard deviation value of 0.993 which illustrated homogeneity of views expressed by the respondents. MIS can help the University to create a positive difference between its products/services & the

competitors' products/services was the fifteenth item on the measured scale with a mean score of 3.727 and a standard deviation value of 1.164 which revealed homogeneity of views expressed by the respondents. MIS can be used to regularly measure staff performance was the sixteenth item on the measured scale with a mean score of 3.707 and a standard deviation value of 0.879 which revealed homogeneity of views expressed by the respondents. MIS can help the University to save money through improved work processes was the seventeenth item on the measured scale with a mean score of 3.68 and a standard deviation value of 1.353 which revealed homogeneity of views expressed by the respondents.

MIS has the ability to help reduce the manpower requirements of the University was the eighteenth item on the measured scale with a mean score of 3.48 and a standard deviation value of 1.314 which demonstrated homogeneity of views expressed by the respondents. The grand mean and standard deviation were 3.921 and 0.916 respectively indicates that generally, the respondents agreed that an integrated management information system can effectively and efficiently contribute to improve on the performance of operations in Catholic University College of Ghana.

Challenges Facing the Design and Implementation of MIS in CUCG

To assess the challenges facing the design and implementation of an effective and integrated MIS in CUCG, respondents were asked to rate their levels of agreement using a likert scale questions of 1-5 on measurement scales of 9 items with 1 showing least rating and 5 showing strong rating. For analysis purposes, the mean and standard deviation of the responses given by the respondents were computed as shown in Table 5. These were analyzed with

mean ranks. The mean score closer to 4 and above were interpreted as agreement, those closer to 2 and below were interpreted as disagreement, whereas those equal to or closer to 3 were neutral.

Table 5: Challenges of Management Information Systems in CUCG

Variables	Mean	S.D
The MIS at CUCG has inadequate budgetary allocation	4.313	0.743
Inadequate computers have been a major hindrance	4.267	0.766
Insufficient human resource for the implementation of MIS	3.893	1.112
Inadequate space to house the IT equipment is a challenge	3.347	1.428
Commitment and loyalty of IT staff is a major hindrance	3.153	1.335
MIS at CUCG is faced with software challenge.	3.793	1.095
Internet connectivity is a major challenge to the operation of MIS	3.787	1.133
Commitment from management is a challenge	3.467	1.262
Resistance to change is affecting the MIS operations at CUCG	3.513	1.073
Grand Mean	3.726	1.105

NB: Mean<2.50 = disagreed; and Mean>2.50 =agreed.

Source: Field data (2020)

Results as shown in Table 5 indicate that MIS at CUCG has inadequate budgetary allocation was rated the most highly agreed. It obtained a mean score of 4.313, indicates that respondents agreed to the item and a standard deviation of 0.743 which revealed minimal divergence of views expressed by the respondents. Inadequate computers have been a major hindrance was rated the second most highly agreed item. It recorded a mean score of 4.267, indicated

that respondent agreed to the item and a standard deviation of 0.766 which revealed homogeneity of views expressed by the respondents.

Again, insufficient human resource for the implementation of MIS was rated third. Rating on the scale showed that respondents highly agreed to the item. It obtained a mean of 3.893 and standard deviation of 1.112 also showed homogeneity of views of respondents. Also, MIS at CUCG is faced with software challenge was rated the fourth. It revealed that respondents agreed to the item. It recorded a mean score of 3.793. Standard deviation value was 1.095 which illustrated homogeneity of views shared by respondents. Internet connectivity is a major challenge to the operation of MIS was considered the fifth item. It recorded a mean score of 3.787. Standard deviation value was 1.133 which demonstrated minimal divergence of views shared by respondents.

Also, resistance to change is affecting the MIS operations at CUCG was rated sixth with mean value of 3.513. It recorded a standard deviation mark 1.073 which revealed minimal divergence of views of respondents on the item. Commitment from management is a challenge was also considered seventh with mean value of 3.46. Standard deviation mark recorded was 1.262 which showed close divergence of the views expressed by respondents. Inadequate space to house the IT equipment is a challenge was seen as the eighth variable on the measured scale factor. Rating on the scale showed that it obtained a mean score of 3.347 and standard deviation of 1.428 which demonstrated close variability of views expressed by respondents.

Last but not the least, commitment and loyalty of IT staff is a major hindrance was identified as the ninth item on the scale with a mean value of 3.153 and a standard deviation of 1.335 which indicated neutral and close

divergence of respondents' views. The grand mean and standard deviation were 3.726 and 1.105 respectively indicated that generally, the respondents agreed that management information system in CUCG is faced with diverse challenges. The most notable among them was inadequate budgetary allocation to build a robust ICT infrastructure.

Discussion of Results

This section discussed the key findings of the study based on the objective stated in the first chapter and in relation to the literature review in the second chapter.

Current State of MIS Practices in CUCG

The study found that the CUCG employs that use of MIS and as a result, the University manages its data using computerization or digital systems however, the MIS was not integrated across faculties and departments. Jyoti and Sharma (2012) MIS should be properly integrated across departments so that people (employees and customers) may have access to some data from any part of the system regardless of who did the data entry and, under the same thinking processes, may use data and programs from whichever part of the system.

The study found that the University has a policy on ICT to guide its operations, the information systems used by the University is accessible, the MIS features are easy to learn and understand, the MIS used by the University response faster, the MIS is flexible and has user friendly interfaces, and reliable. Nath and Badgujar (2013) consents with this concept and directly affirm that the goal of management information systems should be to obtain an improvement and enhancement in the firm's financial performance.

The study found that there were six major MIS indicators identified. These MIS indicators include; information and information systems (general), system usage, information quality, service quality, user satisfaction and system quality. The study found that only information and information systems (general) positively influence organizational performance of CUG. It however, could not establish a specific relationship on whether or not system usage, information quality, service quality, user satisfaction and system quality, positively or negatively, influence organizational performance of CUCG. The result of the study is in line with the findings of Ominunu (2015) that indicated there was no relationship between MIS and organizational performance because of the low and poor organizational culture towards MIS.

The grand mean and standard deviation revealed mid-way rating in assessing the current management information system in CUCG. This is an indication that respondents perceived that challenges exist in their organization but does not significantly affect their performance. This assertion indicates that the MIS in the University is not standardized and as such it is difficult to determine the reliability and validity of the currents management information systems in the University.

How MIS Contributes to the Effectiveness of the Operations of CUCG

The study found that MIS contributes to the effectiveness of the operation of the University in diverse ways. The study found that MIS helps the University to save money through improved work processes, reduces the manpower requirements of the University, gives the University a competitive advantage, helps suppliers and students reduce costs of doing business with the University, and helps the University to create a positive difference between its

products/services and the competitors' products/services. All these contribute to the effectiveness of the operations of the University. The findings support the study by Kehinde and Yusuf (2012) who investigated the role of MIS as a catalyst to organizational performance in the 21st century. The outcome of their study indicated that MIS is very important to an organization because no organization can survive, expand and attain significant development without information particularly in the banking sectors in the 21st Century.

The study also found that MIS contributes to the effectiveness of the operations of the University because MIS is used to make decisions and solve problems, serves as an appropriate tool for coordinating the works of two or more units, helps in monitoring units'/departments'/faculties' effectively, ensures compliance and commitment to rules, used to measure the performance quality of faculties or departments/units, used to regularly measure staff performance, helps in staff training and development and helps financial reports to publish regularly and available for review. The findings are in line with the findings of Al-Mamary *et al.* (2014) who determined the relationship between management information systems and organizational performance. it turned out that MIS assists the functioning and monitoring of a company, and also depicts the elements and resources to guarantee the valid functioning of the organisation.

Also, MIS contributes in the operations of the University in the sense that MIS helps in the analysis of historical and current financial activities, used to integrate financial and operational information from multiple sources into a single system, provides easy access to data for both financial and non-financial users, makes financial data immediately available to shorten analysis turnover

time, and used to monitor and control the use of funds over time in CUCG. The findings imply that generally, the respondents agreed that an integrated management information system can effectively and efficiently contribute to improve on the performance of operations in Catholic University College of Ghana. According to Nowduri and Al-Dossary (2012), managers cannot ignore management information systems because they play such a critical role in contemporary organizations.

Challenges Facing the Design and Implementation of MIS in CUCG

The study found several challenges facing the design and implementation of MIS in CUCG. These challenges include; inadequate budgetary allocation, inadequate computers, insufficient human resource for the implementation, inadequate space to house the IT equipment, commitment and loyalty of IT staff, software challenge, Internet connectivity, commitment from management, and resistance to change. The most notable among them was inadequate budgetary allocation to build a robust ICT infrastructure. Similarly, Almalki *et al.* (2017) found these include; inadequate budgetary allocation, inadequate computers, insufficient human resource, inadequate space to house the IT equipment, commitment and loyalty of IT staff, software challenge, Internet connectivity, commitment from management, and resistance to change.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Introduction

This study examined the effects of management information systems on organizational performance of the Catholic University college of Ghana, under the following research questions: What is the current state of MIS practices at CUCG?; What is the relationship between MIS and the performance of CUCG?; and what are the challenges confronting the design and implementations of MIS at CUCG. The chapter presents the summary of findings, conclusion and recommendation of the study.

Summary

Research objective one was to assess the current state of management information systems (MIS) practices in CUCG**.** The study found that the CUCG employs that use of MIS and as a result, the University manages its data using computerization or digital systems however, the MIS was not integrated across faculties and departments.

Research objective two was to examine how MIS contributes to the effectiveness of operations in CUCG. The study found that MIS helps the University to save money through improved work processes, reduces the manpower requirements of the University, gives the University a competitive advantage, helps suppliers and students reduce costs of doing business with the University, and helps the University to create a positive difference between its products/services and the competitors' products/services

Research objective three was to identify the challenges confronting the implementation of MIS in CUCG. The study found that the challenges include;

inadequate budgetary allocation, inadequate computers, insufficient human resource for the implementation, inadequate space to house the IT equipment, commitment and loyalty of IT staff, software challenge, Internet connectivity, commitment from management, and resistance to change has significant effect on building an effective and integrated MIS in CUCG.

Conclusions

Management information systems (MIS) are essential to the production of quality information for timely and effective decision-making in an organization. The study revealed that there was a technical issue which had to do with a lack of integration of the existing systems. The second question focuses on how MIS contributes to the effectiveness of the operations of the University. It was found that the information value generated by MIS to decision makers and other end users in making decisions is invaluable.

The third question regarding what challenges confront MIS implementation in CUCG, the study revealed that there is inadequate budgetary allocation to build an effective ICT infrastructure to serve as a backbone for the MIS and individual skills and knowledge are required in order to use the MIS.

This study, in general, revealed that there is a strong relationship between management information systems and organizational performance. Therefore, it can be concluded that management information systems have an effect on the organizational performance of the University.

Recommendations

The success of any organization is dependent upon its decision-making potentials, and decision-making is dependent on timely availability of the quality of information, therefore from the findings and the conclusions of the

study, the following recommendations were proposed to supplement the implementation of Management Information Systems.

It is recommended that more effort should be made to look into the variables leading to the construct of the existing management information systems such as general information system, system quality, system usage, service quality, information quality, and user satisfaction to ensure that the existing systems are integrated to improve their grand mean rating.

The study further recommends that in order to completely implement and derive the full benefits of an effective and integrated management information systems in CUCG, there is the need to build capacity by way of training and developing the people (employees) who constantly utilize MIS in their operational activities because that variable as per the findings was rated below the grand mean.

The study also recommends that adequate budgetary allocation should be made available in order to build a robust ICT infrastructure that would serve as a foundation for an effective and integrated management information systems in the Catholic University College of Ghana.

Suggestions for Further Research

Future research should look at the role of management information system (MIS) in decision support system in the University.

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APPENDIX A

CATHOLIC UNIVERSITY COLLEGE OF GHANA, FIAPRE

SCHOOL OF GRADUATE STUDIES

QUESTIONNAIRE FOR STAFF

Dear Respondent,

I am MBA student of Catholic University College of Ghana, and as part of the requirement of the programme, I am conducting a study on the topic "*the Effects of Management Information Systems on the University's performance."* The purpose of this questionnaire is to collect data relating to the current Management Information Systems practices of the University. Data collected would be used solely for academic purposes and you are assured or guaranteed of the strictest confidentiality. Please take some few minutes of your time to answer the following questions as objective as you can.

Thank you.

Please tick or write the appropriate answer (s) at the space provided

SECTION A: Background Characteristics of Respondents

1. Sex of respondents:
    a. Male [ ]
    b. Female [ ]
2. Age range:
    a. Below 30 [ ]
    b. 31 – 40 [ ]
    c. 41 – 50 [ ]
    d. 51- 60 [ ]
    e. Over 60 [ ]

3. Current position? ……..
4. How long have you been working in the University?
    a. Up to 5 [ ]
    b. 6 – 10 [ ]
    c. 11 – 15 [ ]
    d. Over 15 [ ]
5. Which Faculty/Department/Unit do you work in the University?
    a. Registry [ ]
    b. ICT Unit [ ]
    c. Finance [ ]
    d. Faculty [ ]
    e. Library [ ]
    f. VC's Office [ ]
    g. Works Department [ ]

SECTION B: The Current State of Management Information Systems practices at CUG

Please indicate the degree of your agreement with the following criteria for assessing the existing Management Information Systems. Use the scale of:

Key: 1=Strongly Disagree; 2=Disagree; 3=Neutral; 4=Agree; 5=Strongly Agree

SN	Variables	1	2	3	4	5
	Information and Information System (General)					
6	Information is a vital resource of the University					
7	University information can be best be managed by computerization or digital systems					
8	The University has a policy on ICT to guide its operations					
	System Quality					

9	Information systems used by the University is accessible					
10	The system's features are easy to learn and understand					
11	The systems' response time is fast					
12	The systems are flexible with user friendly interfaces					
13	The systems are integrated (across faculties & departments)					
14	Systems used by the University is reliable.					
	System Usage					
15	I utilize the capabilities of the information system in my job					
16	I have appropriate use of the University's information system					
17	Staff & students utilize the capabilities of the information system extensively					
	Information Quality					
18	Reports from the information systems are complete and accurate					
19	The outputs the Information Systems are clear					
20	All the necessary reports are presented at the right time					
21	Reports from the systems are comprehensible and usable					
	User Satisfaction					
22	I am satisfied with the information system reports					
23	I am satisfied with the IT team support					
24	Users are given the needed training to use the information systems					
	Service Quality					
25	ICT Unit has the technical competence					
26	ICT Unit is responsive and reliable					
27	ICT Unit provides support for the system					

28. How do you rate the existing information systems at CUCG?

a. Very High [ ]

b. High [ ]

c. Average [ ]

d. Poor [ ]

e. Very poor [ ]

SECTION C: Examine how MIS Contributes to the Effective Operations of CUCG

Please evaluate the degree of your agreement with the following criteria for assessing organizational effectiveness: Use the scale of:

Key: 1=Strongly Disagree; 2=Disagree; 3=Neutral; 4=Agree; 5=Strongly Agree

	Variable	**1**	**2**	**3**	**4**	**5**
	MIS and Operational Cost Reduction					
29	MIS helps the University to save money through improved work processes					
30	MIS has helped to reduce the manpower requirements of the University.					
31	MIS gives the University a competitive advantage.					
32	MIS has helped suppliers and students to reduce costs of doing business with the University					
33	MIS helps the University to create a positive difference between its products/services & the competitors' products/services.					
	MIS and Management/Senate Decision Making					
34	MIS is used to make decisions and solve problems					
35	MIS is an appropriate tool for coordinating the works of two or more units					
36	MIS has helped in monitoring units'/departments'/faculties' effectiveness					
37	MIS is capable of ensuring compliance and commitment to rules					
	MIS and Performance					
38	MIS is used to measure the performance quality of faculties/departments/units					
39	MIS is used to regularly measure staff performance					
40	MIS helps in staff training and development					
	MIS and Financial Management					
41	MIS helps financial reports to be published regularly and available for review					

42	MIS helps in the analysis of historical and current financial activities.					
43	MIS is used to integrate financial and operational information from multiple sources into a single system.					
44	MIS provides easy access to data for both financial and non-financial users.					
45	MIS makes financial data immediately available to shorten analysis turnover time.					
46	MIS is used to monitor and control the use of funds over time.					

SECTION D: Challenges Facing the Implementation of MIS at CUCG

Please evaluate the degree of your agreement with the following criteria for assessing the existing information systems: Use the scale of:

Key: 1=Strongly Disagree; 2=Disagree; 3=Neutral; 4=Agree;

5=Strongly Agree

	Variables	**1**	**2**	**3**	**4**	**5**
47	The MIS at CUCG has inadequate budgetary allocation					
48	Inadequate computers has been a major hindrance					
49	Insufficient human resource for the implementation of MIS					
50	Inadequate space to house the IT equipment is a challenge					
60	Commitment and loyal of IT staff is a major hindrance					
61	MIS at CUCG is faced with software challenge.					
62	Internet connectivity is a major challenge to the operation of MIS					
63	Commitment from management is a challenge					
64	Resistance to change is affecting the MIS operations at CUCG					

Thank you