KWAME NKRUMAH UNIVERSITY OF SCIENCE AND

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INSTITUTE OF DISTANCE LEARNING

INTEGRATING MANAGEMENT INFORMATION SYSTEMS (MIS)
INTO THE CORPORATE STRATEGY OF
COCOA MARKETING COMPANY (GH.) LTD

By

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DECLARATION

I, Isaac Offei-Addo, hereby declare that this submission is my own work towards the CEMBA and that, to the best of my knowledge; it contains no material previously published by another person nor material which has been accepted for the award of any degree of the University, except where due acknowledgement has been made in text.

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ABSTRACT

The main objective of this study was to evaluate the current MIS of CMC (Gh.) Ltd, recommend ways of improving it and examine the prospects of integrating MIS in the corporate strategy of the company. The study design used was a combination of descriptive research design augmented by a gap analysis. In all fifteen members of the management, divisional and unit heads of the company as well as the head of MIS unit were selected based on the purposive sampling technique to participate in this study. The main research instrument used was the structured interview guide. The study revealed that management and middle management team of the company are not getting timely reports which negatively influence decision-making. In terms of consistency, the structure of data and relationships is not consistent across departments and although data is available, it takes a longer time to retrieve. The company also has not fully explored the benefits that MIS can provide in terms of corporate planning. It is recommended that management change the current data storage and retrieval system from separate files to a database system to reduce the data redundancy.

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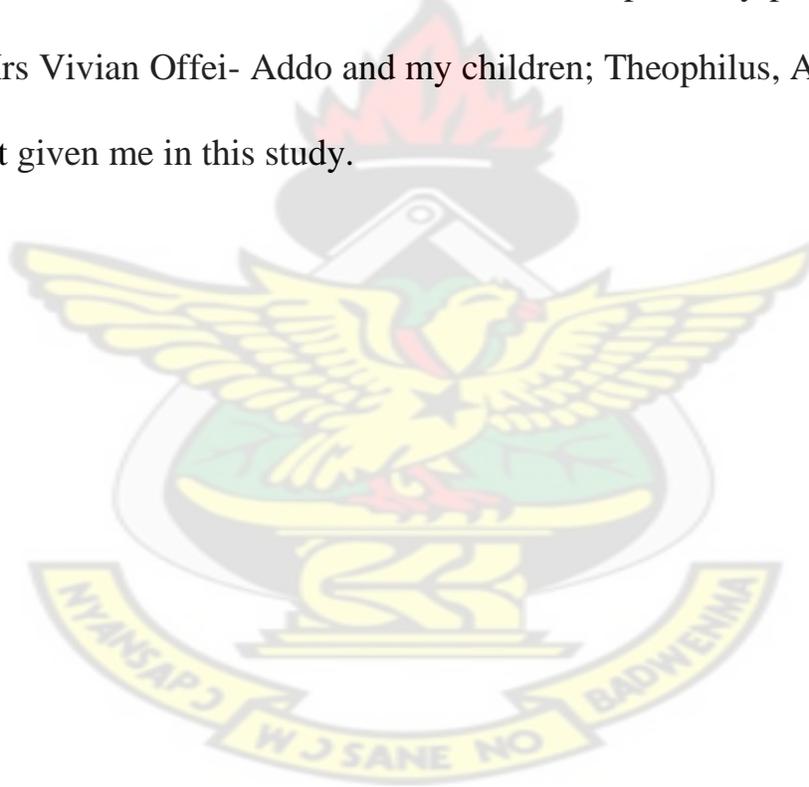
DEDICATION

 I dedicate this thesis to my parents, Rev & Mrs Offei- Addo, Madam Gladys

Bampoe-Parry and my lovely wife.

TABLE OF CONTENTS

Content   **Page**

CHAPTER ONE: **INTRODUCTION**

CHAPTER TWO: REVIEW OF RELATED LITERATURE

CHAPTER THREE: METHODOLOGY

CHAPTER FOUR: DATA ANALYSIS, FINDINGS AND DISCUSSION

CHAPTER FIVE: SUMMARY, CONCLUSIONS AND

RECOMMENDATIONS

LIST OF TABLES

LIST OF FIGURES

CHAPTER ONE

GENERAL INTRODUCTION

1.0 Background to the study

A key challenge for any organization is maintaining and improving its performance in an increasingly complex and competitive global operating environment, where change pressures appear to be the only constant. The importance of information is essential for the achievement of short-term, intermediate and long-range goals (Grant, 2003). It must however, be emphasized that not just any information provides competitive advantage but information, that is timely, relevant and accurate and this is when management information system (MIS) surfaces (Madapusi and D'Souza, 2005).

The challenge presented defines information, the benefits which can accrue from the successful management of information and knowledge. According to Ward and Peppard (2004), information is a primary and essential tool of management and a common thread that ties together the cycle of management that is planning, execution and control. Information consists of data that have been processed and are meaningful to a user. A system is a set of components that operate together to achieve a common purpose. Thus a management information system collects, transmits, processes and stores data on an organization's resources, programmes and accomplishments. The system makes possible the conversion of these data into

management information for use by decision makers within the organization. A management information system, therefore, produces information that supports the management functions of an organization (McLeod, 1995). For the purposes of this study, a management information system is the series of processes and actions involved in capturing raw data, processing the data into usable information, and disseminating the information to users in the form needed (Morrow, 2001).

The opening years of the twenty-first century represent a defining moment, in the recognition that information and knowledge assets are potentially key contributors to the achievement of corporate strategy (Ponzi, 2002). Managers have acknowledged that within organizations, it is imperative for the data generation processing, data gathering and organization for use and extraction of value should be of utmost priority. Data is transformed into information through appropriate dissemination and interpretation; and when used appropriately, assists the decision-making processes (Klecun and Cornford, 2005).

However, the importance of maintaining improved mechanisms to the development, use and review of MIS systems within the organization must be an ongoing concern of any organization management (Hicks, Culley, and McMahon, 2006). The organization's MIS should have a clearly defined framework of guidelines, policies or practices, standards and procedures, which should follow

throughout its development, maintenance and use. MIS can be developed and maintained by either manual or automated systems or a combination of both. These systems should be accessible and useable at all appropriate levels of the organization (Baskerville and Myers, 2002).

The Cocoa Marketing Company (Gh.) Ltd is one of the companies that have identified the immense benefits management can derive from MIS. The company has an MIS unit that produces most of the information needed by management for decision-making. The core business of the company is the supply of premium quality cocoa beans to the international cocoa markets. CMC utilizes the futures market to sell cocoa beans forward to customers worldwide.

 Data is collected by the MIS unit manually and transferred into MS Excel based static reports to assist management with decision-making. Every department develops and maintains its own files. The resulting problems are data redundancy and inconsistency, and an inability to share data among various users. The prime problems with the MIS are the time it takes to produce reports which affects the comprehensive analysis of information especially historical records.

It is important that managers are able to identify strategic opportunities offered by management information systems and the value it adds to organizations. As the role of MIS change, the way business is conducted changes as well. Managers

should determine whether the change in the role of management information system would be of benefit to the company.

1.1 Statement of the Problem

One of the most important contributions of information technology and systems to business firms is the reduction in information uncertainty and the resulting improvement in decision-making (Loudon and Loudon, 2006). Currently, reports to management are prepared manually and are therefore delayed, non-specific and most often crippled by inaccuracies. Historical data is not instantly accessible by management, because the data is not stored in databases, but as individual files in different departments and units located in different regions of the country.

Most organisations in Ghana and CMC to be specific have not benefitted from management information system due to the erroneous assumptions MIS is based on. For example, the Warehouse and Ports Operation (WPO) department would not want the Security department to have in-depth knowledge about its operations. It is assumed that managers in the company are short of information; nevertheless, managers in this company have too much irrelevant information. Managers in Cocoa Marketing Company Ghana Limited are supposed to effectively use information to solve problems of the company if they are provided with the

information required. CMC may have capable and motivated staff, but if they lack information, they will be unable to perform up to their potential. A good information system can revolutionize the work of warehouse staff by helping them to monitor their stock, inbound and outbound processes very well.

1.2 Objectives of the Study

The main objective of the study was to assess the benefits of integrating Management Information System in the Corporate Strategy of Cocoa Marketing Company (Gh.) Ltd.

The study specifically sought to:

1. Define the information needs and requirements of different managers and departments

2. Make an analysis of the current MIS of the company

3. Make a gap analysis of the differences in the current and desired situation

4. Examine how the company can integrate MIS in its corporate strategy.

1.3 Research Questions

Based on the objectives of the study, the following research questions were set to guide the study:

1. What are the informational needs of managers and departments of the company?

2. How is the current MIS structured, how does it process data and what is the outcome?

3. What is the gap between the current MIS and the desired situation of the company?

4. How can CMC integrate MIS in its corporate strategy?

1.4 Scope of the Study

The study is carried out within the confines of the management information system of the company. The study was restricted to the senior management level of the company which includes; Warehouse and Port Operations, Audit, Accounts, Marketing, Human Resource and Administration, Shipping and Security Departments. Since the primary objective of setting an MIS is to provide management with adequate, accurate and timely information that would assist them in decision-making, the study concentrate on the period between 2000 to 2010.

1.5 Significance of the Study

Although most companies have a sort of MIS in place, most of them have not invested time into ensuring that the system is robust and able to provide management with the information needed for decision making. The purpose of this study therefore, is to encourage companies with MIS systems to invest a little time to use them more effectively and thereby gain benefits, which will help to improve

their business. The current literature emphasised more on the use of information communication and technology in business. However, without the people, the technology would not be able to provide management with the needed information for decision-making. This study therefore seeks to highlight the role of human factor in building a robust MIS.

It is also hoped that this study would serve as a useful reference material for policy adoption by corporate bodies and government institutions who wish to remain competitive and efficient by offering recommendation on how to improve their MIS process. Finally, the study would serve as a source of reference to the general public and academia, and stimulate interest in further research into this area.

1.6 Summary of Methodology

The study employed a comprehensive methodology that would aid in the attainment of the objectives set at the commencement of the study. The components of the methodology are the research design, population, sample and sampling technique, research model and the research instruments used in this study as well as the procedures adopted for data collection and analysis. The research design adopted is the descriptive research. The sample size used in the study is fifteen made up of members of management, divisional heads and heads of units of the company.The purposive sampling technique was used to select these

respondents since specific members of management that make extensive use of information provided by the MIS unit needed to be selected for the study. The structured interview guide was used to collect data from these members of management. The data obtained was analyzed and summarized in a way that valid deduction could be made out of them.

1.7. Limitations of the Study

Each research study has some limitations and this study is not an exception. The sample size used in this study was quite small. The purposive sampling technique used is non-probability sampling technique meaning there could be researcher bias in the selection process. However, the nature of the study necessitated the use of such technique. Another limitation is that the study sought to assess the MIS function from the point of view of the head of MIS of the company and there is the likelihood that all the lapses in the MIS function would be provided since a manager is performing a sort of self-appraisal. It must however, be stated that these constraint does not in anyway invalidate the findings of the study, as the results of the study are valid for the sample and organization.

1.8. Organisation of the Dissertation

The study consists of five chapters. Chapter one examined the background to MIS as it pertains to companies globally and CMC, followed by a statement of the problem that informed such a research and the objectives of the study and research questions which directed this study. The scope of the study and its significance to the company and policy makers are then stated. Chapter Two reviewed the literature on MIS. It commenced with different definitions of MIS followed with the importance of MIS.

Chapter Three takes a comprehensive look at the research methodology adopted for the study. The research design, study area, study population and the sampling procedures used to select respondents from the population are discussed in this chapter. In addition, data collection procedures, research instruments, and data processing and analysis are discussed in this chapter. Chapter Four contains the results and discussion of information pertaining to MIS at CMC. The results are presented in the form of tables, charts and figures. Ultimately, Chapter Five, which is the last chapter, is devoted to the summary of findings, inferences made from the results and recommendations.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.0 Introduction

The various theories and empirical literature on management information systems reviewed in this chapter. The chapter begins with an introduction to the concept of information system followed by practical definitions of management information system. The application of MIS in a business setting and its importance are considered later in the chapter.

2.1 The Concept of Management Information System (MIS)

2.1.1 Information Systems

An information system can be defined technically, as a set of interrelated components that collect (or retrieve) process, store, and distribute information to support decision making and control in an organization (Laudon&Laudon, 2006). They add that information systems help managers and workers to analyze problems, visualize complex subjects, and create new products. There are three activities in any information system that produce the information that organizations need to make decisions, control operations, analyze problems, and create new products or services. These activities are input, processing, and output. Input captures raw data from within the organization or from its external environment.

Processing converts this raw input into a more meaningful form. Output transfers the processed information to the people who will use it or to the activities for which it will be used. Information systems also require feedback, which is output that is returned to appropriate members of the organization to help them evaluate or correct the stage (Angeles, 2005).

Finally, Laudon and Laudon (2006) describe an information system as a socio-technical system. They are of the view that though information systems are composed of machines, devices, and physical technology, they require substantial social, organizational, and intellectual investments to make them work properly. These, point to the human factor, which is an essential element if the MIS is to function properly.

2.1.2 Management Information System

According to Larsson and Malmsjö (1998), management information system is an information system used for supporting decision making in general on all levels in an organization. MIS serve the management level of the organization, providing managers with reports and access to the organization's current performance and historical records. Typically, MIS are oriented almost exclusively to internal, not environmental or external, events. MIS primarily serve the functions of planning,

controlling, and decision making at the management level (Laudon and Laudon, 2006).

Nonaka& Takeuchi (1995) on the other hand sees MIS as a term given to the discipline focused on the integration of computer systems with the aims and objectives of an organisation. Management information system is the series of processes and actions involved in capturing raw data, processing the data into usable information, and disseminating the information to users in the form needed. An MIS is not simply a computer program, and it involves more than just calculating numbers.

In Robek, et al. (1996) view, MIS cannot be understood without first distinguishing between data and information. Data are unprocessed facts that give no insight by themselves whereas information is processed or transformed data that help someone make a decision or gain insight. For example, comparing a full management information system includes all the systems an institution uses to generate the information that guides management's decisions and actions. In large institutions, the MIS tends to be mostly or entirely computer-based, requiring software programs to capture and report on the necessary information. The development and management of information technology tools assist executives and the general workforce in performing any tasks related to the processing of information. 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.

2.2 Applications of MIS

With computers being as ubiquitous as they are today, there is hardly any large business, which does not rely extensively on their computer systems in generating some of the information needed for effective operation of the business (Williamson, et al. 2001). With the aid of computers, MIS has become invaluable in supporting several aspects of the business activities such as the strategy, information extraction and presentation (data processing), and assessing the performance of the business using the objectives set out by the business (Peppard, 2001).

2.2.1 Strategy Support

While out of the MIS cannot create business strategies by themselves, they can assist management in understanding the effects of their strategies, and enable them take effective decision. The MIS in place within a company can be used to transform data into information useful for decision-making. MIS can provide scenario or simulation and performance reports to assist in the planning, monitoring and implementation of strategy (Peppard, 2001).

MIS provide a valuable function in that they can collate into coherent reports unmanageable volumes of data that would otherwise be broadly useless to decision makers. By studying these reports, decision-makers can identify patterns and trends that would have remained unseen if the raw data were consulted manually. MIS can also use these raw data to run simulations, hypothetical scenarios that answer a range of 'what if' questions regarding alterations in strategy (Peppard, et al. 2000). For instance, the MIS of a company can provide predictions about the effect on sales that an alteration in price would have on a product. The outputs of MIS enable more informed decision-making within an enterprise that would not have been possible without an MIS in place.

2.2.2 Data Processing

Not only does MIS infrastructure allow for the collation of vast amounts of business data, but they also provide a valuable time saving benefit to the workforce. Where in the past business information had to be manually processed for filing and analysis it can now be entered quickly and easily onto a computer by a data processor, allowing for faster decision-making and quicker reflexes for the enterprise as a whole (Salmela and Spil, 2002)

2.2.3 Management by Objectives

While MIS are extremely useful in generating statistical reports and data analysis, they can also be of used as a Management by Objectives (MBO) tool. MBO is a management process by which managers and subordinates agree upon a series of objectives for the subordinate to attempt to achieve within a set period (Whittington, 2001). Objectives are set using the SMART principle: that is, objectives should be Specific, Measurable, Agreed, Realistic and Time-Specific. He added that, the aim of these objectives is to provide a set of key performance indicators by which an enterprise can judge the performance of an employee or project. The success of any MBOdepends upon the continuous tracking of progress. In tracking this performance, it can be extremely useful to make use of a management information system. Since all SMART objectives are by definition measurable, they can be tracked through the generation of management reports to be analysed by decision-makers.

2.3 Importance of Management Information Systems

The field of MIS can deliver a great deal of benefits to enterprises in every industry. Expert organisations such as the Institute of MIS along with peer-reviewed journals such as MIS Quarterly continue to find and report new ways to use MIS to achieve business objectives. Organizations use management information systems (MISs) for gathering and dispensing the information needed for making timely decisions. Because executives process so much information, they employ computers extensively. They use them 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 (Al-Hawamdeh, 2002).

The MIS contains indicators that show the health of a company, such as profits, cash flow, inventory levels, financial status, market behaviour, 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, companies in the marketing and distribution of products like CMC being studied here can use MIS to improve its core competence, enhance the supply chain management and provide quick responses to changing trends in the business (Wilson 2002).

2.3.1 Core Competencies

Every market leading enterprise will have at least one core competency; that is, a function they perform better than their competition. By building an exceptional management information system into the enterprise, it is possible to push out ahead of the competition. MIS systems provide the tools necessary to gain a better understanding of the market as well as a better understanding of the enterprise itself (Laudon and Laudon, 2006).

2.3.2 Enhance Supply Chain Management

The use of MIS results in an improved reporting of business processes which leads inevitably to a more streamlined production process. With better information on the production process, the ability to improve the management of the supply chain, including everything from the sourcing of materials to the manufacturing and distribution of the finished product becomes an easy task (Zuckerman, 2005).

2.3.3 Quick Reflexes

As a corollary to improved supply chain management comes an improved ability to react to changes in the market. Better MIS systems enable an enterprise to react more quickly to their environment, enabling them to push out ahead of the competition and produce a better service (Salmela and Spil, 2002).

2.4 Factors that affect the establishment of MIS

Once the benefits that companies can derive from a good MIS has been identified, and it has become evident that every company needs a sort of MIS, the next task is to determine how to setup a robust system for collecting, storing, processing, and distributing information (an MIS). Several approaches have been suggested for the establishment of an MIS but the final form of a particular MIS is largely a function of the quantity of information to be collected and the level of resources (human, physical, and financial) available for the development and maintenance of the system (Keng, 2003). It is safe to assume that, in most cases; a large organization will generate more data and, therefore, require a relatively sophisticated computerized system for information management. On the other hand, a small company may only require a manual system. A variety of system configurations are possible, depending upon the size of the company and resources available.

Therefore, this section will not review literature on a single prototype MIS; instead it will provide special considerations required for designing such a system. The factors to be considered in establishing an MIS include the organization (people, structure and roles), the storage and processing of data as well as the technological infrastructure.

2.4.1 Organization of MIS

The first step in developing an MIS is to identify and designate the personnel who will be involved in collecting, storing, processing, and disseminating the information. In most cases,personnel that are actually working in the field are requested to either generate or collect data that are obtained through some type of reporting system. The data are then stored, processed, and disseminated by staff in the administrative section. However, the personnel who will be participating in the process, and the manner by which the information is to be transmitted from one staff member to another, depends on the organizational structure.

Managers, field staff, board members, and information systems staff seldom know all the information needs of their institution. They may be aware of several key indicators that need to be tracked, but the indicators may be insufficiently defined and they may be unaware of other indicators that should be tracked. Effective

communication between management and MIS personnel would be very beneficial in establishing a robust MIS. According to Chaffey (2002), management and MIS personnel generally do not speak the same language. Compounding this communication problem are heavy staff workloads and a tendency to compartmentalize operations. The result, despite the best of intentions, is often a misinterpretation of management requests and a system that does not meet its users' needs.

Management can greatly improve the prospects of developing a good information system through a willingness to evaluate and change the way the institution works. Management information systems can perform only as well as the institutions they model. If policies, procedures, organograms, job descriptions, workflows, and the like have not been properly established, no MIS will function well. Therefore, developing and implementing a new MIS, or reworking an existing one, may affect every part of an organization and generally should, if the process is to be successful.

2.4.2 Storage and Processing of the Data

In any MIS, storage and processing of the data can be performed either manually or electronically. A manual system consists of first labeling and cataloguing the information, followed by an accurate procedure of filing and analyzing it (Salmela

and Spil, 2002). Electronically, the use of personal computers for information management has become practical and popular due to increases in memory and storage capacities, as well as increasingly affordable prices. In addition, there are various commercially available software packages for general-purpose data management, such as spreadsheet and database management. These packages can easily be applied to most organizations. The advantages of using computers including the capability of producing graphs, tables, and maps, and the ease in transferring information (networking) between individuals and departments have made it an integral resource in MIS.

2.4.3 Computers and Other IT Infrastructure

Storage and retrieval of huge quantities of information, called database, would be much more difficult without computers. Overall, the organization, retrieval, and dissemination of recorded information over time have improved dramatically. As a result, computers have become a powerful MIS instrument for interrogating storehouses of information. Although IT systems have greatly improved the way in which executives do their jobs, they also have made professionals dependent on them. When there are system downtimes, MIS personnel are often incapable of carrying on their functions (Wilson, 2002).

However, the uses of computers for identifying problems have created a paradoxical situation. The computer's ability to deliver increasing amounts of raw information compounds the challenge of pinpointing the exact data that might prove relevant in a problem-identifying task. In addition, the effectiveness of computers can vary. They have proved most successful in providing information for routine, structured, and anticipated knowledge but disadvantage when it comes to unstructured data.

2.5 Dimensions for Evaluating an MIS

No two managements have the same information needs. As indicated earlier, the characteristics of MIS developed for different managements are as different as the managers' personalities, the problems they face, and their approach to the complex art of management. Despite these differences, it is possible to identify sets of dimensions for use in evaluating specific MISs in order to determine how effective it is in achieving the objects of setting it up. The four basic dimensions for evaluating the management information system of any organization are information recency, information aggregation, analytical sophistication and computer authority (Clemons and Weber, 1990).

2.5.1 Information Recency

The first dimension, information recency, refers to the time lapse between occurrence of an event in the organization and inclusion of data describing that event in the system. This may range from several weeks in the case of certain market developments to a few hours or minutes for automated inventory control. A robust MIS is one that is able to reflect quickly an event or occurrence in the internal or external environment of the organization (Clemons, et al, 1993)

2.5.2 Information Aggregation

The second dimension, information aggregation, describes the detail with which information is maintained in system data files. According to Clemons and Weber, (1990), inventory control systems in which information regarding product components or sub-assemblies is maintained at the item level are representative of relatively disaggregated (micro) data maintenance while industry market share statistics of the type developed through trade associations are representative of highly aggregate (macro) measures. Clemons and Gu (2003) established that there is a relationship between level of aggregation and the time involved in incorporating associated data in MIS reports.

2.5.3 Analytical Sophistication

According to Clemons and Gu (2003) The third dimension, analytical sophistication, refers to the sophistication of models or structure encompassed by the system. The lowest level of analytical sophistication is that required to identify a particular file and record. At this level, it is only necessary for the computer to retrieve the specified record and display the information that it contains. The second level of analytic sophistication involves aggregation that is, gathering together numbers from within one or more records to produce a total or sub-total. At the third level, the computer may be programmed to perform arithmetic averaging or to compute differences. The fourth level, logical analysis, introduces the use of classification schemes through which various types of data are aggregated within sub-sets or conditionally segmented. At the fifth level of analytical sophistication, statistical analyses may be employed to develop extrapolations from historic data, statistical best estimates, analyses of variance, or trend estimates.

2.5.4 Computer Authority

The final dimensions of an MIS evaluation, authority delegated to the computer, is closely associated with the system's analytic sophistication. Management is more willing to delegate authority to sophisticated systems and, conversely, as

management places greater demands on an information system, a greater level of analytic sophistication must be embodied in the system structure (Clemons and Weber, 1990). At the lowest level, management may delegate to the computer authority to retrieve information from specified records and files that are, entrust to the computer system processes associated with identification and retrieval. Once retrieval capability has been established, it is usually a short step to the next level of computer authority. Recognizing that the computer has access to all records in the file, management concludes that while the computer is "looking at" the contents of each record it might as well check the reasonableness of record content to insure against gross clerical errors (Clemons and Gu 2003)

2.6 Characteristics of Successful MISs

While specific functions performed by successful systems are as varied as the managements to which they contribute, four common characteristics of successful MISs or perhaps more correctly the environment, in which successful systems operate, can be noted. The system should be founded on management's conception of the decision environment, the user-manager must understand the system structure, the system should be based on disaggregated data files and the system development should have proceeded from increasing levels of sophistication through a process of gradual evolution (Turban, et al. 1999).

2.6.1 Management's Conception of the Environment

If a system is to provide meaningful information to a particular management it must reflect that management's priorities and provide information of a type and in a form that can be assimilated in the context of existing management decision processes. Management is simply incapable of assimilating reams of paper therefore, output must relate directly to management conceptions of processes occurring in the monitored environment (Walsham, 1993). In order to meet this requirement an information system must be based on explicit models of the environment provided by management. In most instances management's initial system definition is stated in qualitative "business terms". Before meaningful specifications can be established this frequently vague and ambiguous, initial statement must be refined and restated in explicit terms. Factors considered relevant in the decision environment must be defined and differentiated from those to be excluded (Watson, et al, 1997).

2.6.2 Management Understanding

Management must be involved in this quantitative specification of system boundaries. They must understand and accept the conceptual structuring of system requirements in terms sufficiently explicit to define the measures and analytical

procedures to be encompassed by the system (Watson, et al, 1997). If this level of communication is not achieved, it may be impossible for those concerned with system formulation to develop a system that will be used. Nevertheless, it may be argued, this means involving management in wholly unacceptable detail. "Management is appropriately concerned with the big picture. It is unrealistic to expect them to become involved in questions of measurement." (Zachman, 1999; pp 38)

The process of explication often uncovers the not altogether surprising fact that various members of management have different implicit conceptual models of the decision environment. Making these models explicit removes the ambiguities that permit vague words to mean different things to different people. As with any other specialized tool the information system must be carefully designed to meet the specific requirement of the artisan who will use it and the user must understand its function and capabilities. There is no such thing as a generalized MIS. It is difficult to conceive of a more specialized and highly segmented market than that for management information. The products that have gained acceptance in this market have been one of a kind special orders produced with careful attention to the needs and preferences of the ultimate user (Vemeer, 2001).

2.6.3 The Disaggregated Data File

At the heart of every successful management information system is a disaggregated data file (Sprague, et al, 1993). They posit that the file in which information is maintained in detailed time sequence as it is generated is a disaggregated data file. As new inputs are received, they are maintained along with the existing data rather than replacing or being combined with existing information. New data are not combined with old to form sums, averages, or aggregate distributions. As a result, structural biasing through aggregation that destroys much information value is avoided.

The importance of a disaggregated file rests in part on the evolutionary process through which successful information systems develop. Although an information, system may initially be designed to perform strict limited functions, as management gains experience these functions change. If data are initially structured (aggregated) to meet first stage requirements, later modification of system functions necessitate costly file reorganization. Given access to detailed chronological data the manager is able to test new concepts and ideas against historical data asking the question "what would have happened if we had used these criteria in our monitor system (Hemmen, 1997).

2.6.4 Design for Evolution

Successful information systems should be designed to permit expansion and change. As indicated above, the disaggregated data file is a key element in system flexibility. In addition, data files must be designed to permit expansion. Variable, rather than fixed record length file structures and self-expanding file constructs are basic to the well-planned system. As management gains experience in working with well-organized and accessible data they become increasingly interested in and prepared to use more advanced analytical procedures. The system's analytical structure must not preclude this advancement. Programmes must be organized to permit experimental use of new techniques as well as the permanent incorporation of additional capabilities as part of the standard system configuration (Martinsons, 1991).

2.7 Causes of MIS Failure

MIS systems are complex and expensive pieces of software, and many people are involved with the design both within the organization and from outside. Often the software components of an MIS are built by software houses to the precise requirements of the organization. Therefore, the client organization needs to be very clear as to what it wants, and the software house analysts need to be very clear about the requirements.

MIS failures can be expensive and bring bad publicity to all parties. They can arise due to inadequate analysis problems, when needs and constraints are not understood in the early stages, and when there is lack of management involvement in the design and establishment of the management information system. Management stands to benefit most from the MIS function and must therefore take active part in its establishment. Lack of management knowledge of ICT systems and capabilities can also result in the failure of a well-conceived MIS strategy. Managers know what they want from the system but may not understand the technology, process and outcomes of the system.

Lack of teamwork can also contribute to the failure of a well thought MIS. The MIS/ICT managers must co-ordinate the accounts, marketing, human resource/administration and all other departments and help everyone understand the benefits of the system. The MIS staff must be well trained to understand the information needs of management effectively in order to serve the purpose of management. The human side of MIS must be given serious attention since most of the time the failure of the system emanate from that side.

2.8 Corporate Strategy

Corporate strategy refers to the overarching strategy of the diversified firm. Such a corporate strategy answers the questions of "which businesses should we be in?" and "how does being in these businesses create synergy and/or add to the competitive advantage of the corporation as a whole?" (Mintzberg et al. 1998) Business strategy refers to the aggregated strategies of single business firm or a Strategic Business Unit (SBU) in a diversified corporation. According to Porter (1980), a firm must formulate a business strategy that incorporates cost leadership, differentiation or focus in order to achieve a sustainable competitive advantage and long-term success in its chosen areas or industries. Whichever strategy the firm chooses would be based on the information available to the firm. MIS provides the information necessary to select a particular strategy. MIS therefore, goes hand in hand with corporate strategy (Hambrick et al, 2007).

2.9 MIS and Corporate Strategy

Porter and Miller (1985) assert that management information systems can no longer be dedicated to the accounting and record keeping function of businesses. The use of MIS in value chain activities allows companies to enhance competitive differentiation as well as attain cost leadership and consequently gain sustainable

competitive advantage. In other words, the ability to pursue cost reduction and differentiation simultaneously should be a criterion for MIS utilization.

Earl (1998) asserts that MIS must have the potential to be a strategic weapon in at least one of the following: (1) gaining competitive advantage; (2) improving productivity and performance; (3) enabling new ways of managing and organizing; (4) developing new businesses. These views suggest that the utilization of MIS in corporate strategy is more important than their use in operational contexts (Soo and Narasimhan, 2002). The subsequent sections of this chapter analyses and critically evaluates the impact MIS have on upstream and downstream value creation. The value chain concept was developed by Michael Porter and is illustrated in Figure 1.0. It views a firm as a series, or "chain," of basic activities that add value to its products and services and thus add a margin of value to the firm. In the value chain concept, some business activities are primary activities, others are support activities. This framework can highlight where competitive strategies can best be applied in a business. That is, managerial end users should try to develop a variety of strategic information systems for those basic activities that add the most value to a company's products or services, and thus to the overall business value of the firm. Figure 1.0 provides examples of how and where management information systems can be applied to the corporate strategy using the value chain framework.

The discussion of the value chain concept as identified in Figure 1.0 is done with reference to CMC. The company is into the warehousing, shipment, sales and marketing of premium cocoa beans from Ghana. For example, Figure 1.0 shows that MIS can increase the productivity of office communications and support activities in management and administrative services. MIS can be used to provide information from an employee skills database that can help the human resource management function locate and assign employees to important positions and projects.
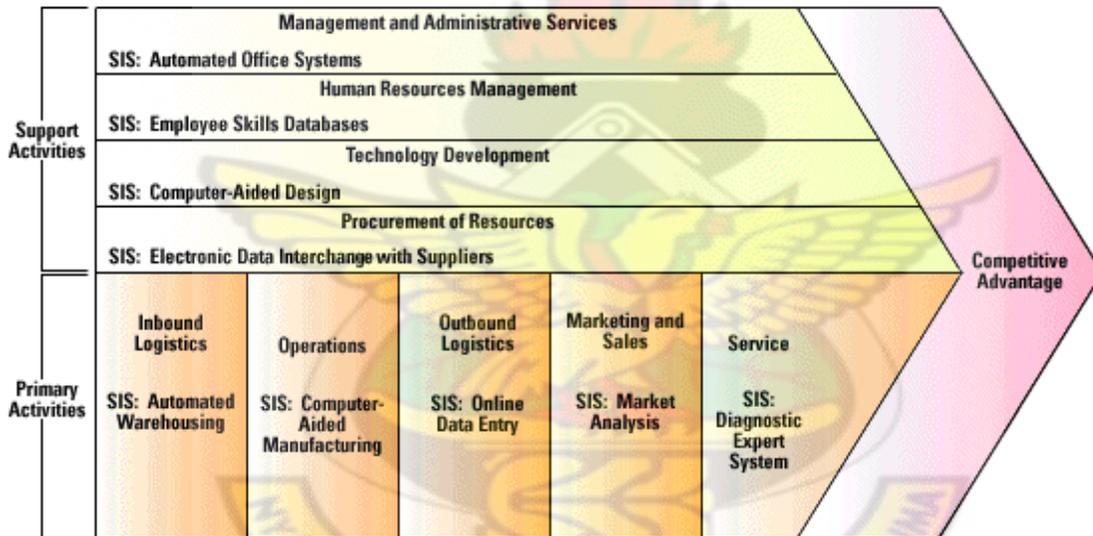
Figure 1.0 The Value Chain of a firm using MIS

Source: *Keen, (1991) Shaping the Future: Business Design through Information Technologies*.

Other examples of strategic applications of management information systems to corporate strategy of the business can be seen in the areas of warehousing, shipment and marketing and sales. This involves using MIS to provide management one of the warehousing systems to support inbound logistic activities

involving storage of inventory, outbound logistics activities that process customer orders. MIS also support the corporate marketing and sales activities by providing analyses of present information that the company has on its customers and markets. Thus, the value chain concept can help managers decide where and how to apply the strategic capabilities of MIS. It shows how various types of strategic information systems can be applied to the specific business activities and helps a firm gain competitive advantage in the marketplace.

Conclusion

Intellectual capital that includes company information systems management abilities is often the distinguishing factor of perspective and profitable companies and drives companies' value (Couger, 1995). At the corporate level, flowof information both internally and externally are vital for the proper development and deployment of corporate strategy. Information provides the ability to set objectives and to give feedback upon performance. As the role of MIS changes, the way business is conducted changes as well. On the other hand, managers should determine whether the change in the role of MIS would give it a strategic edge.

The best way to know the role of MIS is to determine how it affects management decisions and departments. Companies need to know how information systems affect the performance of other sectors and when a sector is not performing well

due to MIS. Companies should also know more about how other companies make use of MIS. By knowing how other companies make use of management information systems, they can compare the use and merge it in accordance with the capabilities of the company. This can also help the company to discover the different strategic opportunities that are made available due to the management information system.

CHAPTER THREE

METHODOLOGY

3.0 Introduction

In this chapter the study organization, research design, population, sample and sampling technique, research model and the research instruments used in this study were discussed. This chapter of the study also examined the procedures adopted for data collection and analysis.

3.1 The Research Design

The study made use of descriptive survey research designs and a gap analysis. The research objectives for this study were formulated based on the steps that would be taken in order to resolve the problem statement as formulated. Using a gap analysis, the information requirements of Management of the company were first analyzed, followed by an analysis of the current management information system in the light of the information needs. Finally, an analysis of the difference between the current and desired situation were made based on the results of the gap analysis, and recommendations made on how to diminish this gap and make the MIS in place robust. The MoSCoW framework was used for prioritizing areas of MIS that Management want improved.

3.2. The Population

The population of the study is made up of the Management of the company. The company employs over 653 employees managed by 14 managers. The management of the company includes 3 Senior Managers and 11 Managers that make up the management board, 3 Divisional Heads and 17 Unit Heads.

3.3. The Sample and Sampling Technique

The total sample for this study was fifteen. They included the Head of MIS, 4 members of the management board, 3 Divisional Heads and 7 Unit Heads. The nature of the study necessitated the use of the purposive sampling technique for selecting respondents. The purposive sampling technique was used to sample the fifteen respondents from the management, divisional and unit heads of the company. The purposive sampling technique involves selecting a sample in accordance with the aim the researcher seeks to attain. This sampling technique was used because specific members of management that makes extensive use of information provided by the MIS unit needed to be selected for the study. In addition, the head of MIS for instance had to be sampled for this study to respond to certain questions that pertain to the current MIS of the company thus, the use of purposive sampling technique.

The seven heads of unit were selected using the simple random technique. The list of heads of units was obtained from the human resource department. Using the

picking without replacement seven heads of units were selected from the list of heads of units.

3.4. The Research Instrument

The main data collection instruments used for the study was a structured interviews guide. The questions on the interview guide were structured with both open and closed questions. The open questions allow respondents to give answers in their own way whereas the closed questions provide a number of alternative answers from which the respondent is instructed to choose. The latter type of questions was used in a section of the interview guide for management since it is usually quicker and easier to answer, as they require minimal writing. Reponses are also easier to compare as they are predetermined.

The interviews were used because the self-administered questionnaires risked producing limited scope of answers to questions, especially in cases of structured questions. The interview was designed so that the respondents would be free to bring up issues they felt would be of interest to the subject, as a result a "discussion-friendly" atmosphere in which one was able to ask follow-up questions was created. The questions on the interview guide were formulated with the objectives of the study in mind. For instance, to determine the informational needs

of management, respondents were asked to provide decisions that are impossible to make without (the right) information.

3.5. Data Collection

Exhaustive interview sections using a structured interview guide were used for the data collection. Conducting interviews represents one of the essential sources of gathering information for any case study. The kind of interviews used in this study a semi-structured interview. This form of interview is mix of more or less structured questions which guided the issues to be explored. This was the nature of the interviews of the management. The interviews were scheduled by the respondents and it was carried out in the comfort of the respondents' offices. All the responses were written down by the interviewer. Some of the questions were repeated to be sure of the consistency and reliability of answers obtained. The data collection was done within a period of 8 weeks.

3.6. Data Processing and Analysis

Tools from Statistical Package for Social Sciences software and Microsoft Excel were used in the analysis of the quantitative data obtained from management. 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 was then entered into the worksheet, based on these codes, and then

subjected to statistical analysis to provide the information needed for discussion. The qualitative data were summarized in formats that made it easy to be incorporated into the findings of the study.

3.7. Profile of the Study Organization

The Ghana Cocoa Marketing Company (Gh.) Limited is a wholly owned subsidiary of Ghana Cocoa Board. The company's primary business is to support trade, logistics and financing activities of the parent company. The company serves as an inter-phase between customers and the Ghana Cocoa Board to facilitate international cocoa business.

The core business of the company is the supply of premium quality cocoa beans to the international cocoa markets. CMC utilizes the futures market to sell cocoa beans forward to customers worldwide. An integrated team of experts in physical, futures and options trading as well as freight and logistics support these activities.

The company has several departments and units located in different regions of the country and an international administrative section in the United Kingdom. The various departments of the company include Accounts, Human Resource & Administration, Marketing, Warehousing and Port Operations, Security, Shipping and Audit. The UK section, the Ghana Cocoa Marketing Company (UK) Limited

is a wholly owned subsidiary of CMC Ghana. CMC (UK) represents the country on International Commodity Bodies such as International Cocoa Organization (ICCO), International Coffee Organization (ICO) and Federation of Cocoa Commerce Limited in London.

CHAPTER FOUR

DATA ANALYSIS, RESULTS AND DISCUSSION

4.0. Introduction

In this chapter the data analysis, results and discussion conducted were discussed in this study. This chapter of the study also examined how to integrate MIS in the corporate strategy of the company.

4.1. Information Needs and Requirements of Managers and Departments

To support decision-making, monitor operations and measure how well a department or unit is performing, different departments require different data and reports. Based on interview sections with managers and heads of these departments and units, an overview of these requirements are presented in Table 1.

The data and report requirements vary from department to department as well as the frequency that these reports must be made available. Some data, particularly detailed data on tonnage of shipment, invoice of shipped cocoa beans and the

documentation on shipment, is required daily. Shipping and Logistics department

for instance requires a daily overview of the tonnage of cocoa beans shipped and

the documentation of all vessels undertaking the shipment. This enables the

department to track the progress of all consignment shipped, the destination points

and arrival dates. This enables them provide the customers that would receive the

shipment all relevant information covering the shipment.

Table 1: Information needs of Departments

Department	Information requirement	Period
Warehousing	Volumes of stock received	Daily
	Volumes of stock released for shipment	Daily
	Dates of stock transfer and shipment	Weekly
Shipping & Logistics	Volumes of shipment	Daily
	Vessels undertaking shipment	Weekly
	Documentations on shipment	Daily
Finance	Invoices of shipped cocoa beans	Daily
	Revenue per shipment	Monthly
	Mode of payment by client	Weekly
	Consolidated results	Monthly
Marketing	Client and product segmentation	Monthly

	Countries and destination of products	Monthly
	Customer complaints and suggestions	Daily
Special Services	Reports on insurance covering shipment	Daily
	Reports on vessel inspection and destination	Daily

Source: Field Data, 2011

It must however be emphasised that the informational needs of managers of CMC is influenced by the level that the manager occupies in the organisational structure, the higher the manager, the higher the level of information. Middle management requires reports on the performance of their department whereas information requested by senior management is mostly on the company level performance.

4.2 Analysis of the current MIS of the Company

The analysis of the current management information system was done with respect to the reports being produced, the structure of the MIS function and the role of MIS personnel in providing timely and accurate reports. This section of the study mainly involved inventorying with management what kind of reports they currently receive, and finding out from the MIS unit the process and procedures they go through in coming up with those reports.

Through the interview sections with Management and head of MIS, it became known that most of the information/data required by management were always available, but it takes a long time to produce, because of the manual way of creating this management information. The time lapse between the date of activity and the date of reporting makes the information a lot less valuable. This directly shows that one of the lapses in the existing MIS of CMC is lack of communication between departments. Although the reports of one department are used by several departments within the company, it takes a long period for other departments to have the information although it may be available some few days after carrying out the activity.

Another option of assessing the current MIS function was in terms of their output or reports that they present to Management. Management of the various departments involved in the study were asked to rate the reports of the MIS department in terms of accuracy, completeness, validity, timeliness and accessibility and the results are presented in Table 2 to 6.

Table 2: Accuracy of MIS reports

	Frequency	Percentage
Accurate	6	40
Moderately Accurate	6	40
Contains errors	3	20
Total	15	100

Source: Field Data, 2011

The reports of the MIS department can be termed fairly accurate based on the ratings given them by management as shown in Table 2. Three management members was of the view that the reports received from the MIS unit contains some errors while the remaining claimed the reports were moderately accurate or accurate. This means that management to a certain extent can rely on the reports of MIS to take strategic decisions that affect the company.

The same thing however, cannot be said of the MIS reports in terms of completeness. Most management members interviewed constituting 80 percent of the respondents as shown in Table 3 asserted that the reports they received are sometimes or never complete.

Table 3: Completeness of MIS reports

	Frequency	Percentage
Most of the time	3	20
Sometimes	3	20
Never	9	60
Total	15	100

Source: Field Data, 2011

In reacting to this assertion of other managers, the head of MIS claimed one of the major challenges they faced in producing complete reports is the scattered nature of the data. He added that most of the warehouses for instance are scattered across the length and breadth of the country and one needs to collate data from all these sources to provide a consolidated report. Furthermore, some of the data at the time that these managers request for the information are not available and they always ensure that the absence of these data is captured in their reports. He however, stated that all these reports are updated within the month when all the relevant data becomes available.

In terms of validity, that is whether report values fall within defined ranges, majority of the managers (60%) were of the view that the reports are valid most of the time.

Table 4: Validity of MIS reports

	Frequency	Percentage
Most of the time	9	60
Sometimes	6	40
Total	15	100

Source: Field Data, 2011

Whereas 40 percent of the managers were of the view that the data and values in the reports are sometimes within range, none of the managers claimed the values are never valid. This means that should the MIS unit be able to clear the hurdle of incomplete data within the reports, most of the information they provide to management can be used perfectly for decision making since the current data that they are able to obtain are usually accurate and valid.

Table 5: Timeliness of MIS reports

	Frequency	Percentage
Sometimes	3	20

	Frequency	Percentage
Never	12	80
Total	15	100

Source: Field Data, 2011

The responses of management indicated that one of the quality dimensions of information, that is timely information is not being met in the current situation. As many as 80 percent of management interviewed claimed the information or reports that they receive from MIS department is never received on time. Three of the managers were of the opinion that MIS sometimes provides information or reports on time. This was corroborated by the head of MIS as he cited late reporting as one of the challenges facing the unit. He asserted that the current management reporting requires manual intervention and as such, information is not available "on demand".

Table 6: Accessibility of MIS reports

	Frequency	Percentage
Most of the time	12	80
Sometimes	3	20
Total	5	100

Source: Field Data, 2011

The last attribute of a good MIS system as assessed in the case of the current MIS of the company was the accessibility of MIS reports and information. As shown in Table 6, Most of the managers making up of 80 percent of those interviewed stated that the information and reports of the company's MIS is accessible. They were of the view that once the report is produced by the MIS department, it is made available to all managers and officers that need to take decision based on the content of the reports. The only drawback and the reason why three managers cited the reports as not accessible is the fact that most of the reports and information produced are located on different network drives and external data storage devices of the departments that relies most on the information for decision-making. This sometimes makes it difficult to retrieve information on network drives of other departments since you always need someone within that department to assist you locate the file or reports.

The main task of the MIS team is to prepare management reports on the operations of CMC. The MIS unit also supports other departments in their information requirements. According to the head of MIS, this does not work efficiently, mainly because most departments have their own members making some management reports of a sort, which absorbs time they could have spent on their actual tasks.

The current process of obtaining information for the preparation of management reports is semi-automated. There is computerised management information system that is augmented with manual interventions to produce the needed reports. Systems are not linked to each other, which leads to data inconsistency and data redundancy.

The processes in the MIS unit are structured. Every month they make the same reports and they do that in the same way. Their starting point for these reports is the output from CMC's computerised system for warehousing and shipment of cocoa beans. This data is automatically generated at month end and therefore available on day one of the next month. The outputs are two spreadsheets with data on daily warehousing tonnage and the other on daily transfer from warehouse for shipment. These are spreadsheets files with thousands of lines of information spread over about a dozen of columns. The remaining information is provided by people in different departments, like the shipping and warehouse and port operations, finance in MS Excel sheets. This information is received in the first week of the next month. All this information is transformed into the same format in spreadsheets.

After all information is adjusted and manipulated in Excel, with the use of pivot tables, the relevant information is sorted out and transformed into reports. This process takes more than a week sometimes since all warehouses scattered across the country must confirm their data. Moreover, at the head office in Accra, all the results of all locations have to be consolidated. Until all locations have finished this manual process, there is no insight in the exact consolidated operational results for the previous month. It takes almost three weeks for all the reports of the operational results for the previous month to be completed.

The final reports made available to Management are spreadsheet based and provided to them in both soft and hardcopy. All reports are stored on local drives or shared network drives not in databases. Therefore, all historical data is captured in different spreadsheet documents. This makes it almost impossible to retrieve historical data, and data is only available in the format where it was made available.

4.3 Gap Analysis of the Current and Desired MIS

The gap-analysis was undertaken by comparing the current situation with the desired situation according to the formulated criteria, and defining what kind of improvement is required. The gap between the current use of systems and the required use of systems is a little wide. It can be inferred from the interaction with management and the head of MIS that most of the requirements are not being met, because of the manner in which data in the company is being stored and retrieved. As discussed in the current MIS section of the study, the main problem is the time it takes to get the required data, which is much longer than required. Most data is available in one way or another, but it takes a lot of time and effort to obtain it. This is obviously because of the large share of human participation in the process of management reporting.

The desired situation of every MIS involves employees spending more time on analyzing data, rather than on producing it. Currently a lot of time is absorbed by retrieving data from all the various system but with a well-designed MIS structure, all this data is in one place. To retrieve it, people have to run queries or use specialized software. The human involvement in the process cannot be totally shelved since not all requirements can be incorporated in systems, so there are still reports that have to be made on an ad-hoc basis. People have to make sure that all

relevant data is inputted into the database. Since not all data comes directly from the systems, manual input is still required.

4.4 Integrating MIS in the Corporate Strategy of the Company

The role that information plays in terms of corporate planning cannot be downplayed and as such management of the various departments was asked about the nature and information requirements of their departments in terms of strategic planning. The information ranged from an annual overview of total purchased or warehoused cocoa beans to total shipment in terms of tonnage. Whereas some managers required information that is disaggregated on monthly basis and indicating the variances with budgeted figures others only required the actual.

In terms of strategic planning, the WPO department for instance required information on the monthly analysis of the tonnage at the various warehouses of the company. They further required this information to be broken down into the various grades of beans that were received at these warehouses. The head asserted that the MIS unit to a certain extent is able to fulfill some of their information requirements. For instance, they are able to provide them at the company level with the total tonnage of beans that was received into all warehouses of the company on an annual basis. This information is usually compared with the budgeted figures at

the beginning of the year to determine how well the department has performed in terms of achieving the targets set for them by the senior management of the company.

The above situation is not synonymous with the WPO only. The Shipping department also received similar information on total shipment which gives an insight into expected revenue for the year by the Finance department. The only drawback is that most of these departments put these information together using officers within the department although MIS department could have provided these information in a single report thereby reducing the time and effort in producing this information as well as the data redundancy that emanates from duplication and replication of the same reports.

In terms of the role that MIS plays in the corporate planning and strategy of the company, it can be inferred from the interview sections with Management that the output of the MIS unit is inadequate for the purpose of corporate and strategic planning process. Only a small percentage of the information that Management claim they required for corporate planning and strategy were being produced by the MIS unit. In reaction to this, the head of MIS was of the view that most of the information management requires can be produced but these information

requirements are not well communicated to the officers hence their inability to provide the required reports.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSION, AND RECOMMENDATIONS

5.0 Introduction

This final chapter of the study provides a summary of the entire study. The summary of the major findings as well as the conclusions that can be drawn from these findings are presented in this chapter. It concludes with a recommendation to the MIS unit, management and policy makers. The main objective of this study was to evaluate the current MIS of CMC, recommend ways of improving it and examine the prospects of integrating MIS in the corporate strategy of the company.

The study design used was a combination of descriptive research design augmented by a gap analysis. In all fifteen members of management, heads of units of the company and the head of MIS was selected using the purposive sampling technique to participate in this study. The main research instrument used was the structured interview guide and the information obtained used in the discussion of chapter Four.

5.1 Summary of Findings

The first objective of the study sought to define the information requirements of managers and departments of the company. The key findings from this are that:

1. Based on KPI's, each manager and department required different information that they could use to assess how well they are performing as well as make vital decisions for the long-term survival of the company; and

2. Whereas the finance department required data in monetary terms such as total revenue aggregated monthly, operation departments like shipping and logistics as well as WPO required data on tonnage of shipment and vessels being used for shipment.

The second objective involved analysing the current MIS situation of the company in terms of report quality, personnel and structure. The emergent issues are that:

1. Most of the information/data required by Management were always available, but it takes a long time to produce, because of the manual way of

creating this management information. The time lapse between the date of activity and the date of reporting makes the information a lot less valuable;

2. the reports and data produced by the MIS unit are fairly accurate and as such Management can rely on it to make strategic corporate decisions;

3. MIS reports are sometimes or never completed and this is because information needs to be collated from different departments of the company, and this collation is usually not complete when Management request for these information;

4. most of the data or reports produced by the current MIS is valid or within range and should the MIS department be able to clear the hurdle of incomplete data, most of their reports could be the basis of strategic decisions;

5. the dimension of data quality that the current MIS lacks most is timeliness of reports. Most of the reports are not produced on time;

6. the reports of MIS are mostly accessible to all managers although retrieval is quite cumbersome due to the location of these reports; and

7. each department have individuals producing reports for that department only although there is an MIS unit within the company and this increase the spate of data redundancy within CMC.

The third objective involved making a gap analysis of the current management information system by comparing it with the desired situation. The major findings were:

1. the gap between the current use of systems and the required use of systems is a little wide;

2. most of the gap is caused by the manner of data storage and retrieval in the company. A robust MIS should facilitate easy storage and retrieval of data especially historical data; and

3. the ideal situation in any management information system is less human participation, however, the current system requires lots of human intervention in the data collection and reporting process.

Examining the prospects of integrating MIS in the corporate strategy of the company was the last objective. The issues that emerged from this objective included the following, that:

1. MIS can help in corporate planning functions like budgeting and variance analysis since all the information required for such activity can be produced by the MIS of the company;

2. The current information produced by the MIS department is inadequate in addressing the information needs of managers and departments for the purpose corporate planning.

5.2 Conclusion

With respect to the first objective of the study which sought to define the information requirements of the managers and departments of the company, it can be concluded that different managers of the various departments have different KPIs and therefore different end-requirements. The basic though, is quite similar. Almost everything required revolves around the storage, shipment, and sale of cocoa beans. Whereas the finance department concerns itself with information on invoices of shipped products, the shipping as well as the WPO departments requires information on volumes of products received, the volumes shipped to the destinations, vessels used and the documentation covering the ports and customers that would receive the consignments.

Assessing the current MIS of the company, it can be concluded that most data manipulation is done in MS Excel and most individual files are stored on (network) drives. Further, all departments have their own files, often with duplicate data (data redundancy) which leads to data inconsistency. Management of the company is not getting timely reports which negatively influence decision-making. In terms of consistency, the structure of data and relationships is not consistent across departments and locations although almost all required data is available it is very

time-consuming to retrieve them this affects the completeness of reports. Data is not directly accessible by Management, since it is stored as individual files and not stored in a database. Everything has to be requested from employees and they have to provide it to Management.

It can also be inferred that there is a gap between the current MIS of the company and the desired situation as attested to by Management. All management members attested to the fact that timeliness is 'a must have' feature of the reports they receive but it takes a lot of time and effort to obtain because of the large share of human participation in the process of management reporting. Although the desired situation of most MIS involves employees spending more time on analyzing data, rather than on producing it, most of the MIS time in CMC is spent on the retrieval and consolidation of data from different departments leaving less time for analysis and management reporting.

The company has not fully explored the benefits that MIS can provide in terms of corporate planning. Interaction with management indicated that managements on year by year basis have to collate information in times of budgeting for instance. The absence of a consolidated historical data impedes the planning process since

Management are unable to do comparison, trend analysis and progress tracking which could easily have been improved the budgeting process.

5.3 Recommendations

Based on the summary of findings and conclusions, the following recommendations are made for CMC management's consideration. Management should:

1. Change the current data storage and retrieval system of the company. The current storage of data in different locations and in separate files needs to be changed to a database management system (DBMS). A database centralizes the data and controls redundant data. Rather than storing data in separate files for each application, data are stored as to appear to users as being stored in only one location. This can be as simple as an MS Access database, or as complicated as a full data warehouse. Historical data will be easily accessible, which allows comparison, trend analysis and progress tracking.

2. reduce the data redundancy within the company by instructing each department to cease the production of their own reports. To prevent data redundancy and inconsistency all data needs to be centrally stored and maintained by the MIS team. Current management reporting by people from other departments needs to cease. This also prevents duplicate work and thus

waste of time. Moreover, the reliability of the data will increase when an independent team reports them, rather than people whose performance is measured based on the data producing them.

3. communicate their information requirements in terms of corporate planning, specifying the details and aggregation needed. This would go a long way to ensure that the MIS unit produces reports for Management they would be effectively used in the corporate planning process.

REFERENCES:

Al-Hawamdeh, S. (2002). *Knowledge Management: Re-thinking Information Management and Facing the Challenge of Managing Tacit Knowledge.* Information Research, 69(3), 99-109.

Angeles, R. (2005). *RFID Technologies: Supply-Chain Applications and Implementation Issues. Information Systems Management.* Winter 2005, Vol. 22 Issue 1, p51

Baskerville, R. L. And Myers, M .D. (2002). *Information Systems as a Reference Discipline. MIS Quarterly*, 26 (1): 1-14.

Clemons, E. K. And Gu, B. (2003). *Justifying Information Technology Investments: Balancing the Need for Speed of Action with Certainty before Action. Journal of Management Information Systems.* 20, 2, 11–48.

Clemons, E. K. And Weber, B. (1990). *Strategic Information Technology Investments: Guidelines for Decision-Making.* Journal of Management Information Systems, 7, 2, 9–28

Clemons, E. K., Reddi, S. And Row, M. (1993). *The Impact of Information Technology on the Organization of Economic Activity: The "Move to the Middle" Hypothesis*. Journal of Management Information Systems. 10, 2,9–36

Couger, F. (1995). *Knowledge Management: An Organizational Capabilities Perspective*". Journal of Management Information Systems. Vol. 18 Issue 1, p185

Earl G. (1998). Strategic information systems revisited: a study in sustainability and performance, *MIS Quarterly*, 18(1), 31-58.

Grant, R. M. (2003). *Contemporary Strategy Analysis: Concepts, Techniques, Applications*, (4th Edn), Oxford: Blackwell

Hemmen, L. J. G. T. (1997). *Modeling Change Management of Evolving Heterogeneous Networks*, Doctoral Dissertation, Delft University of Technology

Hicks, B. J., Culley, S. J. And mcmahon, C. A. (2006). *A Study of Issues Relating to Information Management Across Engineering SMES*. International Journal of Information Management. 26: 267-289.

Hoven, J. V. (2001). *Information Resource Management:* Foundation for Knowledge Management. *Information Systems Management*, 18(2), 80-83.

Keen, P. (1991). *Shaping the Future: Business Design through Information Technologies*. Harvard Business School Press, Cambridge.

Keng, S. (2003). *Inter-Organizational Systems and Competitive Advantages – Lessons from History*. Journal of Computer Information Systems. Vol. 44 Issue 1, p33

Klecun E. And Cornford T. (2005). *A Critical Approach to Evaluation.* European Journal of Information Systems 14, 229-243.

Larsson N. O. And Malmsjö A. (1998), *A Model for Design of Human Activity System.* Systemic Practice and Action Research, Vol. 11, No 4

Laudon, K. C. And Laudon J. P., (2006) *Management Information Systems, Managing the Digital Firm.* (9th Edn) Pearson Prentice Hall

Madapusi, A. And D'Souza, D. (2005). *Aligning ERP Systems with International Strategies.* Information Systems Management, Vol. 22, Issue 1, p7

Martinsons, M. G. (1991). *Management Philosophy and IT Application: The East– West Divide.* Journal of Technology Management, Vol. 18, pp. 207-218

Mcleod, R., Jr., (1995). *Management Information Systems: A Study of Computer- Based Information Systems* (6th Edn). New Delhi: Prentice Hall of India New Delhi.

Morrow, N. M. (2001). *Knowledge Management: An Introduction.* Annual Review of Information Science and Technology, 35, 381-422.

Nonaka, I. And Takeuchi, H. (1995). *The Knowledge-Creating Company: How Japanese Companies Create the Dynamics of Innovation.* New York, NY: Oxford University Press.

Peppard, J. (2001). *Bridging the Gap between the IS Organization and the rest of the Business: Plotting a Route.* Information Systems Journal, Vol. 11, Issue 3, p249

Peppard, J., Lambert, R., and Edwards, C. (2000). *Whose Job is it Anyway?.* Information Systems Journal, Vol. 10, Issue 4, p291

Ponzi, L. (2002). *The Evolution and Intellectual Development of Knowledge Management.* Unpublished PhD dissertation. Long Island University, Palmer School of Library and Information Science.

Porter, M. And Millar, V. E. (1985). *How Information gives you Competitive Advantage.* Harvard Business Review. 63(4), 149-160.

Robek, M. F., Brown, M. F. & Stephens, D. O. (1996). *Information and Records Management.* New York: mcgraw Hill.

Salmela, H. And Spil, T. (2002). Dynamic and Emergent Information Systems Strategy Formulation and Implementation. *International Journal of Information Management*, Vol. 22, Issue 6, p441

Soo W. K. And Narasimhan, R. (2002). *Information System Utilization in Supply Chain Integration Efforts.* International Journal of Production Research, Vol. 40, Issue 18, p45-85

Sprague D., Ralph H. Jr.; and Bargara C. M. (1993). *Information Systems Management in Practice, New Jersey*: Prentice Hall International, Inc.

Turban, E. E. Mclean, J. And Wetherbe, D. (1999) *Information Technology for Management*. New York: John Wiley & Sons

Vemeer, H. P. J. (2001). *Data Quality and Data Alignment in E-Business*, Doctoral Thesis, Eindhoven University of Technology

Ward, J. And Peppard, J. (2004). *Strategic Planning form Information Systems*. (3rd Ed) New York: John Wiley & Sons

Watson, R. T., Gigi G. K., Galliers, R. D. And James C. B. (1997). *Key Issues in Information Systems Management: An International Perspective.* Journal of Management Information Systems, Vol. 13, No. 4, pp. 91-115

Whittington, R. (2001). *What is Strategy and Does It Matter?*. (2nd Edn)Thompson Learning, MA

Williamson, E. A., Harrison, D. K. And Jordan, M. (2001). *Information Systems Development within Supply Chain Management.* International Journal of Information Management, Vol. 24, Issue 5, p375

Wilson, T.D. (2002). Information Management. In J. Feather and P. Sturges, (Eds.), International Encyclopaedia of information and library science, (2nd Edn.) Pp. 263-278) London: Routledge.

Zachman, J.A., (1999). *A framework for information systems architecture,* IBM Systems Journal, pp. 37-39

Zuckerman, A. (2005). *Pushing ERP Integration into the Supply Chain*, World Trade, Vol. 18, Issue 3, p54.

APPENDIX 1:

STRUCTURED INTERVIEW GUIDE FOR HEAD OF MIS

This study is about an analysis of the management information system of Cocoa Marketing Company (Gh.) Limited. The purpose of this interview guide is to collect data on information requirement of management/department and the current MIS of the company. Data collected would be used solely for academic purpose and respondents are assured of the observance of the strictest form of confidentiality.

SECTION A: Background characteristics

1. Managerial Position ……………………………………………………

2. Departmental/Unit staff strength …..…………………………………..

3. KPIs-Key Performance Indicators (indicators to measure how well the unit/department is achieving quantitative objectives)

    a. ……………………………………………………………………..

    b. ……………………………………………………………………..

    c. ……………………………………………………………………..

    d. ……………………………………………………………………..

e. ……………………………………………………………………..

f. ……………………………………………………………………..

SECTION B: Information needs and requirements

Which types of information are routinely requested by managers/departments?

Manager/Department	Info Requested	Frequency of Request

SECTION C: Current MIS of CMC

How is the current MIS structured (MIS team, data warehousing etc)?

a. ……………………………………………………Frequency………………..

b. ……………………………………………………………………..

c. ……………………………………………………………………………..

d. ……………………………………………………………………………..

e. ……………………………………………………………………………..

f. ……………………………………………………………………………..

How does the MIS process data (Queries, data transformation and storage etc)?

a. ……………………………………………………………………………..

b. ……………………………………………………………………………..

c. ……………………………………………………………………………..

d. ……………………………………………………………………………..

e. ……………………………………………………………………………..

f. ……………………………………………………………………………..

What is the outcome of the data processing (volume and type of files, data quality)?

a. ……………………………………………………………………………..

b. ……………………………………………………………………………..

c. ……………………………………………………………………………..

d. ……………………………………………………………………………..

e. ……………………………………………………………………………..

f.   …………………………………………………………………………………………..

SECTION D: Desired Situation (Gap Analysis)

What factors hinders the MIS team from effectively performing their functions?

a.   …………………………………………………………………………………………..

b.   …………………………………………………………………………………………..

c.   …………………………………………………………………………………………..

d.   …………………………………………………………………………………………..
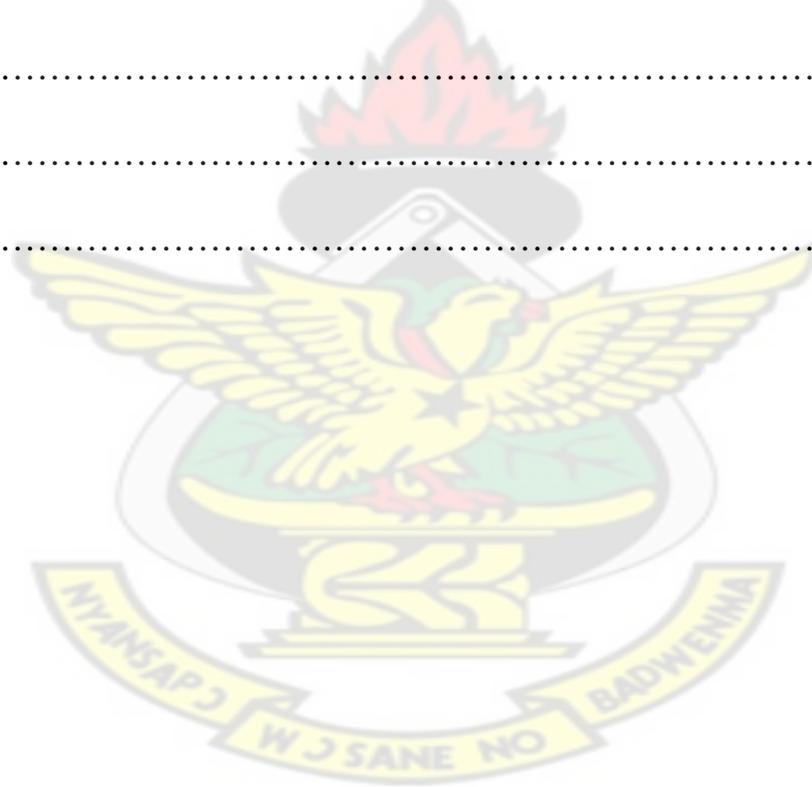
APPENDIX 2

STRUCTURED INTERVIEW GUIDE FOR MANAGEMENT

This study is about an analysis of the management information system of Cocoa Marketing Company (Gh.) Limited. The purpose of this interview guide is to collect data on information requirement of management/department and the current MIS of the company. Data collected would be used solely for academic purpose and respondents are assured of the observance of the strictest form of confidentiality.

SECTION A: Background characteristics

1. Managerial Position ……………………………………………………………

2. Department(s) ……………………………………………………………….

SECTION B: Information needs and requirements

3. KPIs-Key Performance Indicators (indicators to measure how well the department is achieving quantitative objectives)

    g. …………………………………………………………………………..

    h. …………………………………………………………………………..

    i. …………………………………………………………………………..

    j. …………………………………………………………………………..

    k. …………………………………………………………………………..

l. ………………………………………………………………………..

4. Major decisions made with the support of MIS (These decisions are impossible

to make without (the right) information)

a. ………………………………………………………………………..

b. ………………………………………………………………………..

c. ………………………………………………………………………..

d. ………………………………………………………………………..

e. ………………………………………………………………………..

f. ………………………………………………………………………..
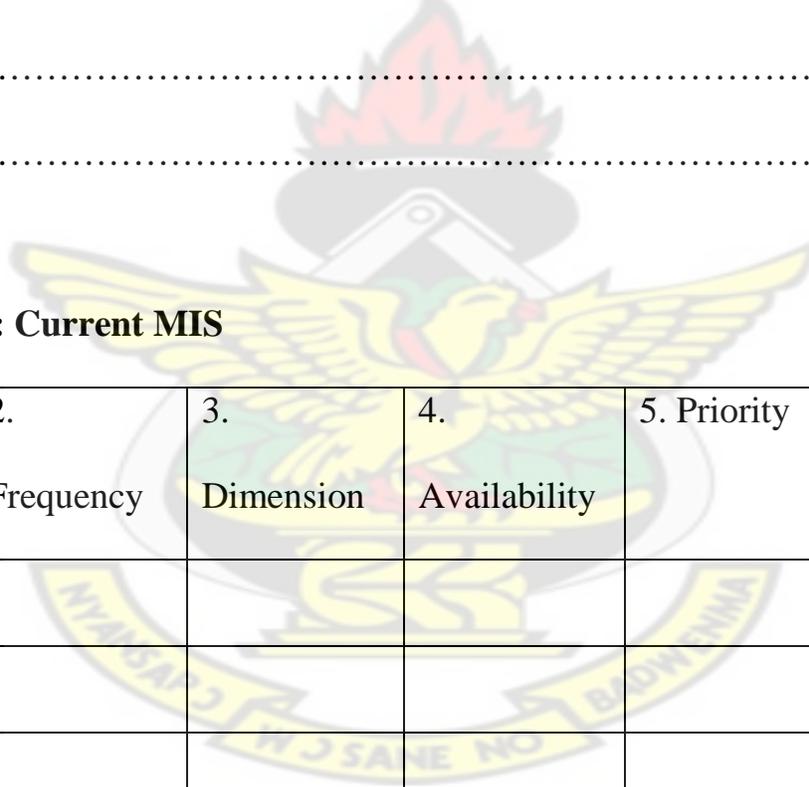
SECTION C: Current MIS

1.Info Needs	2. Frequency	3. Dimension	4. Availability	5. Priority	6. Method

2. **Frequency-** Daily, Weekly, Monthly, Quarterly, Semi-Annually, Yearly

3. **Dimension-** Customer, Regional, Segments, Company

4. **Availability-** time taken to provide data (eg. after one week)

5. **Priority-** High, Medium, Low

6. **Method-** Manual, Semi Automated, Automated

How do you rate the reports you currently receive from the MIS unit?

7. Accuracy: Do the reports represent reality?

(a) Accurate   [   ]   (b) Moderately Accurate [   ]   (c) Error prone   [   ]

8. Completeness: Are all the necessary reports present?

(a) Most of the time   [   ]   (b) Sometimes   [   ] (c) Never   [   ]

9. Validity: Do reports values fall within defined ranges?

(a) Most of the time   [   ]   (b) Sometimes   [   ]   (c) Never   [   ]

10. Timeliness: Are reports available when needed?

(a) Most of the time   [   ]   (b) Sometimes   [   ]   (c) Never   [   ]

Accessibility: Are the reports accessible, comprehensible and usable?

(a) Most of the time   [   ]   (b) Sometimes   [   ]   (c) Never   [   ]

SECTION D: Desired Situation (Gap Analysis)

Rate your desired characteristics of the reports you receive with the following scale:

- M - MUST have this.

- S - SHOULD have this if at all possible.

- C - COULD have this if it does not affect anything else

- W - WON'T have this time but WOULD like in the future.

11. Accuracy: [   ]

12. Completeness: [   ]

13. Validity: [   ]

14. Timeliness: [   ]

15. Accessibility: [   ]
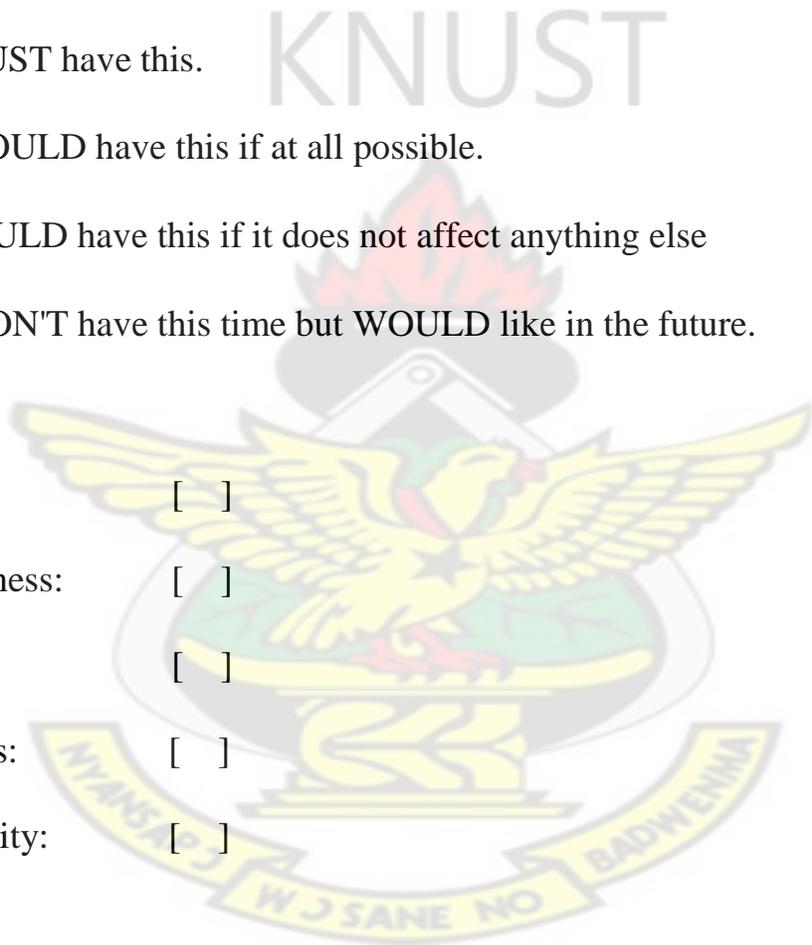
SECTION E: MIS and Corporate strategy

16. What are your information requirements in terms of strategic planning?

    a. …………………………………………………………………..

    b. …………………………………………………………………..

c. ……………………………………………………………………..

d. ……………………………………………………………………..

17. Which of the information required is provided to you by the MIS unit?

a. ……………………………………………………………………..

b. ……………………………………………………………………..

c. ……………………………………………………………………..

d. ……………………………………………………………………..

18. What role does the information provided by MIS play in setting corporate objectives and goals?

a. ……………………………………………………………………..

b. ……………………………………………………………………..

c. ……………………………………………………………………..