CHAPTER 1
INTRODUCTION

1.1 Introduction

A Management Information System (MIS) is an integrated, user-machine system for providing information to support operations, management, and decision-making functions in an organization. The system utilizes computer hardware and software, manual procedures, models for analysis, planning, control and decision making, and a database. It is designed to both reduce the costs and increase the capabilities of organizational information processing [1].

This thesis introduces an establishment of MIS implementation plan that corresponds to the requirement of a running business and it is designed to be used as a guideline on the subject of implementation plan for MIS. Wang Noi Power Plant is used as a study case.

The thesis shows how the MIS system should be structured, integrated and implemented over the long-term period. The MIS planning is most often thought of as a structured approach or methodology, the methodology for MIS planning is divided into 3 stages [1]:

1) MIS strategic planning

First, there is the analysis of an organization's goal, objective and strategy, then the study of which information might support the organization's strategy.

2) Organizational information requirement analysis

Next, it proceeds to the identifying applications, information architecture and the boundaries and interfaces of the individual application modules. This can be counted as the developing an information system master plan.

3) Resource allocation

Finally, it is to consider which applications shall be implemented and in what order, also the cost and benefit should be factors of the consideration.

The thesis also provides methodology details, mechanisms for successful implementation, risk and the benefits expected from the MIS. It provides the reader with an understanding of the MIS project and its implementation.

This thesis is divided into ten chapters; chapter 1 gives the background of the thesis, chapter 2 has details of the literature review. Chapters 3 to 4 contain a summary of the systems requirements for the MIS and how the various applications of MIS will satisfy those requirements, chapter 5 provides details of the system design, while chapters 6 to 7 show the implementation activities and the schedule for implementation. Chapter 8 gives details of the investment plan, chapter 9 has mechanisms for successful implementation, and chapter 10 contains the thesis' conclusion. Appendix shows the executive summary report.

1.2 Background

1.2.1 The Electricity Generating Authority of Thailand

The Electricity Generating Authority of Thailand (EGAT), a state enterprise, has the mission to:

1) Generate sufficient and stable electric power.

2) Develop energy resources to substitute imported oil, such as operating lignite mine.

3) Operate a transmission line system to transmit electric power throughout the country to the MEA (Metropolitan Electricity Authority), the PEA (Provincial Electricity Authority) and some big industries.

Recently, the Royal Thai government has succeeded in setting up privately owned electricity generators. They are called IPPs (Independent Power Producers) and SPPs (Small Power Producers). They may generate electricity for their own use and sell the excessive energy to EGAT. In the mean time, the government has also been trying to privatize EGAT, conforming to the future competitive environment under globalization situation.

EGAT announced a new structural change, which has been in effect since the beginning of fiscal year 1998. The new structure, comprising six Operative Units (OUs) and six Business Units (BUs), is aimed to improve management efficiency and business flexibility of the individual units, which will culminate in EGAT's greater corporate efficiency and performance.

The Operative Units are Policy and Planning, Account and Finance, Administration, Construction, Hydro Plant and Demand Side Management Office. Business Units to operate as profit centers consist of Transmission System Business,

Generation Business 1 (PowerGen 1), Generation Business 2 (PowerGen 2), Maintenance Business, Engineering Business and Mining Business. All business units but Transmission System Business will be corporatised / privatized when applicable. The transmission system and all operative units will remain belonging to EGAT.

To support the business challenges, PowerGens require business decision information that is accurate and swiftly retrieved. Such information duly supports operations, management, and decision-making functions.

1.2.2 The Wang Noi Power Plant

The Wang Noi Power Plant belongs to the PowerGen 1, and is located in Ayutthaya province. It consists of 3 blocks of combined cycle mode operations. Block 1 and 2 started production in August 1997 while Block 3 has run commercially since September 1998.

The responsibilities of the power plant are:

1) Operation of generators for producing electricity

2) Study and analysis of the performance and efficiency of power plants

3) Maintenance of the power plant equipment for satisfactory reliability during its life expectancy

4) Conducting administrative and general services such as accounting and finance, disbursement checking, inventory control and procurement.

1.3 Statement of Problems

As the power plant has as its organization's strategy to be a competitive business unit in the future, it requires an effective management. To achieve this aim, the power plant has to efficiently utilize the existing resources. The successful procedure is to have a Management Information System (MIS) that integrates the user-machine system for providing information to support operations and management as a tool for decision making in order to be of advantage to the organization.

The implementation of MIS must be carefully planned in order to obtain the effective management as mentioned.

1.4 Objectives of the Thesis

The objectives of the study are as follow:

1) To develop the design of a management information system for the power plant.

2) To develop an implementation plan of the design in 1)

1.5 Scope and Assumptions of the Thesis

The scope and assumptions of the study is as follows:

1.5.1 The design of the management information system (MIS) will cover the following activities:

1) The analysis of the MIS objectives which will support the organization strategy.

2) A survey of the current capabilities of the power plant to find out each process requires which data, and its existing facilities of application software, hardware, and network

3) The analysis of the information requirements to support the organization strategy. The plan provides the description of design of MIS that the power plant should implement and shows the concerned information of each process.

4) The recommendation of hardware architecture and network configuration based on the availability of such equipment in current market.

1.5.2 The implementation plan of the MIS covers the following activities:

1) The determination of which application should be implemented and setting its priority

2) A design of MIS master plan showing the order of each information system to be implemented and its duration.

3) A design of MIS twelve months plan showing the tasks to be performed, schedule of work and human resource requirement.

4) Identifying the key factors for accomplishing a successful implementation.

5) Providing a rough budget analysis for spending on computer hardware, communication network, software, and staffing.

1.6 Content of the Thesis

The title and contents of each chapter are summarized below:

Chapter 1 - Introduction. This chapter provides an introduction of the thesis, introduction of EGAT and the power plant, statement of the problems, objective of the plan, scope of the study and assumption, and the contents of the various chapters of the thesis.

Chapter 2 – Theories and Literature Review. This chapter provides the methodology of the MIS system design and implementation tasks.

Chapter 3 - MIS Objective and Strategies of the power plant. This chapter provides the transformation of the organizational strategy set into the MIS strategy, the MIS objective for the power plant and the strategy for MIS in the power plant.

Chapter 4 - Analysis of Systems Requirements. This chapter identifies organization information requirement. The software solution for each of the functional requirements is described, along with the benefits of the proposed approach. It also summarizes the current organization operational procedure and the information system facilities, which consist of the existing applications software, hardware platforms, network, current organization chart and current operational procedure.

Chapter 5 - System Designs. This chapter describes design stage, the software selection and the hardware, peripheral, proposed network requirement and the network software that will be required to support MIS users.

Chapter 6 - Implementation Plan. This chapter describes implementation task, the application implementation time frames of MIS master plan and the twelve months plan.

Chapter 7 - Human Resource for MIS Implementation. This chapter presents the proposed organization structure for the MIS implementation team and describes the work

to be performed by each position in the organizational structure. An estimation of staff resources of a twelve months plan that will be required to support the implementation is also discussed.

Chapter 8 -- Investment Plan. This chapter describes the major budget items that must be funded over the implantation period.

Chapter 9 -- Mechanisms for Successful Implementation. This chapter mentions the key success factors for accomplishing the implementation.

Chapter10 -- Conclusion. This chapter describes the thesis conclusion.

The Executive Summary in Appendix is almost the same as the conclusion in Chapter 10. This version has been written as a brief first reading for the top management. Therefore less time has to be spent to understand the entire MIS implementation plan in its outlines. In the specific chapters then the details may be found.