

DEVELOPING SYSTEM INFORMATION TECHNOLOGY ON PLANNING  
DEMAND AND SUPPLY

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*First of all, all the praises and “syukur” be to Allah S.W.T for His Love,  
This thesis is dedicated to my family,  
To my beloved parents, H. Hisbun Nazar and Hj. Nurhaida,  
And my brother, Muhammad Rilly Aka Yogi  
Thank you very much for your unstinting help and encouragement.*

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## ABSTRACT

Response time on orders of customers is becoming a critical issue to achieve a competitive advantage. This thesis presents an Expert System for simulating order processing activities, providing control over the order processes and reporting the orders status online. Managers would have control on orders transactions, and workshop floor supervisors could monitor and control the orders processing online. An information system model is to be designed, and a prototype is to be developed. A case study is to be conducted to prove the developed prototype system. The assumed activities to be covered within this system; procurement, inventory control, accounting, shipping and customer relationship management (CRM).

*Keywords: Expert system, Order processing, Inventory, Procurement, Accounting, Shipping, Customer relationship management (CRM).*

## **ABSTRAK**

Respon terhadap tempahan pelanggan sedang menjadi masalah yang sangat penting untuk mencapai keunggulan berkompetisi. Tesis ini menyajikan sebuah sistem pakar untuk menjalankan simulasi kegiatan dalam pemprosesan tempahan, penyediaan kawalan atas proses tempahan dan pelaporan status tempahan secara online. Pengurus akan mengawal pada transaksi tempahan, manakala penyelia pada lantai produksi akan memantau dan mengawasi proses tempahan online. Sebuah model sistem informasi akan direka, dan sebuah prototaip akan dikembangkan. Sebuah kajian kes akan dipelajari untuk membuktikan sistem prototaip telah yang dibangun. Kegiatan lainnya yang terlibat dalam sistem ini meliputi pengadaan, pengendalian persediaan, perakaunan, penghantaran dan pengaturan hubungan pelanggan.

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# **CHAPTER 1**

## **INTRODUCTION**

### **1.1 Background of the project**

Response time on orders of customers is becoming a critical issue to achieve a competitive advantage. As consequently it has enforced organizations to implement new business models and use them in a variety of ways. This enforcement drove organizations to revise their strategies and goals to meet market rules of demand and supply and create solutions to stay competitive (Abdulrahman, 2006).

The significance of planning for demand and supply does help top managers to decide strategic planning processes and discuss tools that can be used for decision making. Planning allow a manager to be proactive and manage demand and supply to ensure that profit are maximized (Chopra & Meindl, 2007). To ensure good service for customers, planning of demand and supply can be managed whenever manufacturing is integrating with suppliers and customers. These would support with implementing information technology on the business process.

The information technology (IT) is the most important tool available to decision maker for achieving higher level of efficiency and productivity in business operation. Most of the business will be operated by using information system to take advantage of the new technology (Greenspan, 2000). Furthermore, IT offers opportunity to reorganize every aspect of business model and business processes. Enterprises are seeking these opportunities to improve their efficiencies and effectiveness to achieve their desired goals and objectives (Stiroh, 2001). Reorganize using IT in organization is one of the approaches that purpose to observe activities and structure changes in the system. This approach emphasize on applying new methodology on developing applications as information technology to support business process.

An application would be conducted on case study of Mineral Water Company in Indonesia to obtain information flow and then propose a methodology developing information technology on planning demand and supply.

## **1.2 Problem Statement**

The problem that is addressed in this research can be defined as follow:

Enterprises are facing uncertain market demand. Furthermore, the high competition aspects require a high responsive and effective information system.

### **1.3 Objective and Scope of the Research**

The objective of this research is to develop information technology system that can be used by production and operations management managers to manage planning the demand and supply within the system.

This proposed system is limited to aid in:

1. Research conduct on case study at Mineral Water Company in Indonesia.
2. There are relationship activity among suppliers, manufacturer and customers.
3. System Development Life Cycle (SDLC) approach is used to develop the system

### **1.4 Assumption**

The proposed methodology is implemented under several assumptions:

1. Order scheduling technique using Re-Order Point (ROP) approach
2. Rejects and reworks are negligible
3. The raw material as part is always delivery on time whenever do purchasing

### **1.5 Significance of the Research**

It is believed that this research will provide an information system for small and medium size enterprises. Besides, it gives contribution for Indonesian distribution mineral water to serve consumption drinking water to customer. The



result of this research could help Indonesian business model of mineral water to become more effective and competitive. Currently there are no researches in Indonesia about mineral water distribution so this research will aid Indonesia to develop their local entrepreneur.

## **1.6 Organization of the Thesis**

This thesis consists of 7 chapters. Chapter 1 presents the background of the project, problem statement, objectives and scope of the research, assumptions used, and the significance of the research.

Chapter 2 presents a detailed literature survey covering a number of relevant topics, such as of Demand and supply, implementation of information technology and system development life cycle (SDLC).

Chapter 3 presents a methodology for this research which consists of the development of case study using system development life cycle and the development of application to support demand and supply activities.

Chapter 4 presents the phases to develop system using system development life cycle methods.

Chapter 5 presents application modules to support the supply and demand activities.

Chapter 6 presents discussions the work that has been carried out in developing information technology using system development life cycle of demand and supply. It provides the whole picture of the research with its ultimate result.

Chapter 7 presents conclusions of the main research outcomes and proposes for future research.

## **1.7 Summary**

This chapter has given a general introduction about the entire study. At the beginning of this chapter, the background of developing information technology on demand and supply were briefly discussed. It was followed by an introduction of the company and the problems that the company is facing. The objectives and scopes of the project were stated to address the goals and boundaries of the study. The significance of the study was discussed. Lastly, the arrangement of the entire report was explained.