

## **CHAPTER 1: INTRODUCTION**

### **1.1 Purpose and Significance of Study**

The evolution and rapid advancement of information technology (IT) has created a more sophisticated and competitive business environment. Towards globalization and borderless economy trend, many organizations have realized the importance of developing IT. IT enable organization to gain competitive advantage by improving operational and managerial efficiency via advanced management information system and decision support system, enhancing product innovations, improving productivity and quality through operation automation and therefore increase organization' s bargaining power over particular customers and suppliers. In short, IT plays a vital role in the business success of an organization. Many organizations have developed more and more IT projects for their business operations' reengineering and restructuring. Were all IT project successfully implemented? Studies have shown that there was a widespread dissatisfaction about the performance of IT projects (Mohan Thite, 2000). Many IT projects encountered problems during implementation and some were abandoned. Even when such IT systems were implemented, the usage was limited to basic operational used and not meeting the business strategies or the original requirements of the projects. However, some cases stand out precisely because things have gone right. The success and failures of IT project implementation within an organization ultimately depends on several key factors.

In order to identify the success factors of an IT project implementation, a case study has been conducted on a manufacturing company with the purpose:

1. To identify the success factors of a new Information System project implementation of a manufacturing company by gauging the user satisfaction and review of the lessons learnt and experience gained throughout the development and implementation stages of the project.
2. Identify the weaknesses of the project and make recommendations to improve the system and enhance success of future's IT projects.

IT project failure is normally very costly and painful. All the invested capital and resources may be wasted without getting anything if a system fail to run and finally need to be abandoned. An imperfect system may also incur excessive budget for modification and excessive manpower to follow up. IT project failure can be minimized by identifying the success factors and take necessary precautions of the critical factors throughout the whole project implementation. This study involves the IT project implementation in a manufacturing company with high production volume, fast goods movement and heavy process operational activities. In such production environment, error in IT project is crucial since it may cause goods piling-up, delivery cannot be made and other problem that will result in high loss cost. The results and recommendations of this study could be used as an important reference for organizations of similar industry when developing and implementing an IT project. It is believed that an effective tool of success is by learning previous experience and failures. Many studies have pointed out the general critical success factors of IT project from data obtained via companies of various industries. In this case study, conclusion is derived from a specific and in-depth analysis on a manufacturing company's IT project. The findings may be more useful and relevant for the similar industry to refer to.

## **1.2 Scope of Study**

A multinational semiconductors manufacturing company has been selected in this study. Study was targeted on a new information system that has been developed in the company. The satisfaction of system output of users who are mainly the Executives staffs of Engineering, Planning, Quality Control and Production departments of the company were gauged in this study. Besides that, a review of the project development process, experience and lessons learnt from the project has been conducted with the project team sub-leaders (the key runners of the project) in order to derive the success factors of IT project.

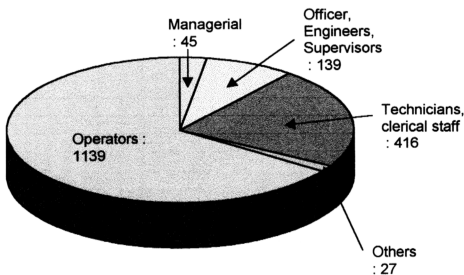
## **1.3 Limitations of the Study**

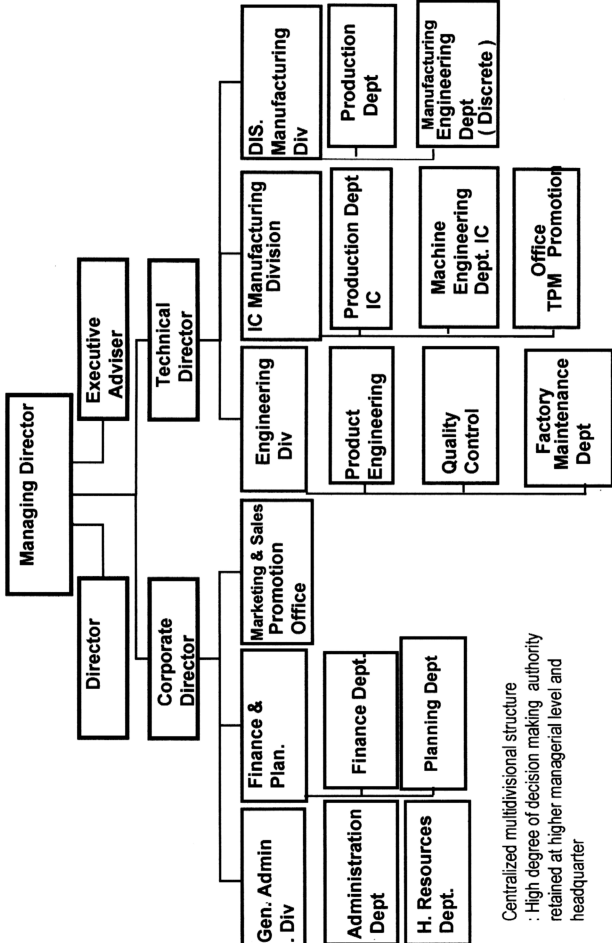
The study is limited to derive success factors of an IT project by gauging the user satisfaction and project review in terms of system functionality quality. Issues related to whether project was implemented within budget and required time are not covered in this study.

**1.4 Background of the Case**

The company under studied is a manufacturing company located in Klang Valley. It is a semiconductors company, manufacturing a wide range of electronics components. As of the moment of this study, it is manufacturing total of 49 packages of product with thousands of types that are categorized based on their specific electrical function and characteristics. The company was selected to be studied is because of its nature of fast moving goods and high production volume that make the IT project implementation more challenging. A crucial mistake may cause a huge loss.

The company is a financially stable company. The yearly sales volume of the company is 357, 441.7 and 440 million pieces of product in 1999, 2000 and 2001 respectively which resulted total of RM627.3, 846.4 and 850 million in the respective years. In year 2000, there was 2,200 employees in this company; but due to the recent economy downturn, the company has downsized its organization to about 1,700 employees. Distribution of the company's employees as of Sept., 2001 is as follow :





Centralized multidivisional structure

: High degree of decision making authority retained at higher managerial level and headquarter

The organization structure of the company is centralized multidivisional structure with high degree of decision making authority retained at higher managerial level and headquarter. The organization is led by a Managing Director. There are 2 Directors under the managing Director. Both of them are leading six divisions :

1. General Administration Division
2. Finance and Planning Division
3. Marketing and Sales Promotion Office Division
4. Engineering Divisions : consists of 3 Department i.e. Engineering, Quality Control and Factory Maintenance Department
5. Production Division

In year 1999, the corporation has realized that the IT of its worldwide companies is very much behind its competitors. The headquarter has made a decision to gain competitive advantage by upgrading the information system of its worldwide manufacturing plants. The headquarter has directed one of its division, Electronics Data Information System Division to develop a core software then customized at each manufacturing plant based on their respective requirements. The Division has come out with the core system in 1998. The new system comprises 2 systems as a whole: Data Input system which is for data input and capturing; and Information Output System which captures database of the Data Input System and transform the data to output defined by user. The new system is claimed to have the following features:

In terms of production operation:

1. Simplification of operation job by using list box instead of key input.
2. Operation automation such as auto lot number generation, auto shipping code assignment and etc.
3. Reliable security. Every individual has his or her own password. Identity of every single input, amendment and maintenance job in system are traceable.
4. Online work in process (WIP) tracing for better lot arrangement

5. Auto prompt for input error
6. Auto process yield calculation and judgement
7. Flexible production control for example it enable lot splitting and merging which is unfeasible for the previous system
8. Auto hold

#### 8.1 Abnormal Hold

Auto hold for lots having problem to prevent them to be flowed out to customer. This feature is very useful in fast moving production environment of the company. With the old system, all lots are manually hold by searching the abnormal lots and then segregate them from the normal lots. Due to the fast moving of the lots, most of the time problem lots are difficult to be located. With auto hold, lots cannot be input and system will auto prompt for lot hold when the lots are registered for processing in all junctions.

#### 8.2 Schedule hold

Lots can be scheduled to be hold at the required process. System will prompt for lot hold if a particular lot reach the required hold junction. This feature may prevent lots to be flowed out without the required confirmation.

9. Lot priority. System can auto prompt for hot lots that are urgently needed by customer to be given priority to be processed.

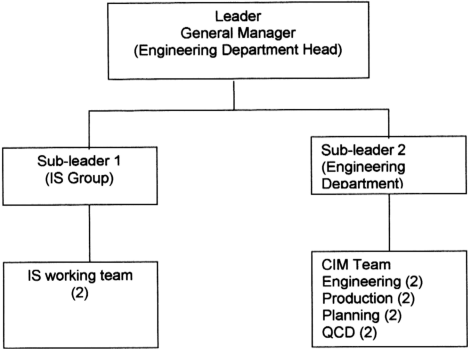
In terms of Output Information:

1. Online data collection and summary : Yield performance, machine status (in operation, idling or breakdown), WIP status, lead time tracing are collected and summarized in online basis for prompt action and decision making.
2. High flexibility and data integration. Data can be exported for user's own manipulation. User can select combination fields of data required (for example machine number, material number, time period, employee number and etc.)

3. Auto lot history tracing. The online lot history summary can be obtained through the system. Manual tracing for slips or record ledgers are eliminated.

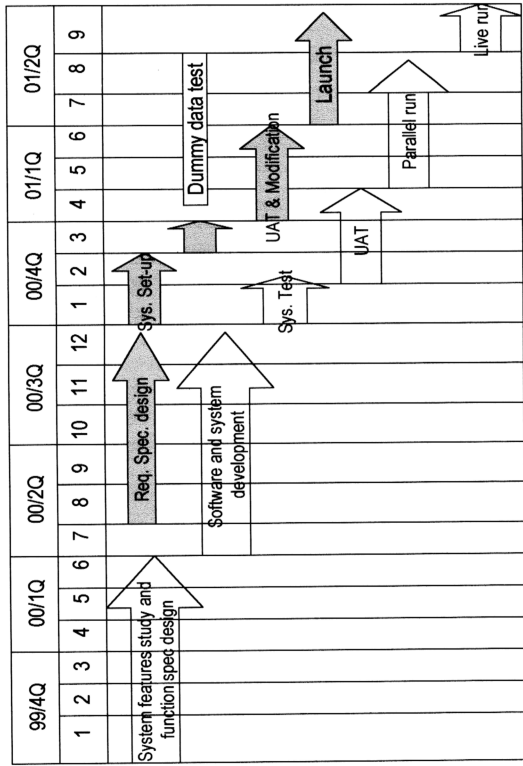
The new system was first introduced to Singapore plant in year 1998. The Malaysia plant was the second plant instructed by the headquarter to adopt this system. A master plan (shown in next page) has been established by the IS group and a project team consists of 3 IS members and a CIM team consists of representative from Production, Planning, Engineering and Quality Control department has been formed for this IT project.

Project Team:



Remark : ( ) : Number of members

# Master Schedule



 Data Input System schedule
  Info. Output System schedule