

# QUALITY MANAGEMENT MATURITY AND ITS RELATIONSHIP WITH HUMAN RESOURCE DEVELOPMENT STRATEGIES IN MANUFACTURING INDUSTRY

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**QUALITY MANAGEMENT MATURITY AND ITS RELATIONSHIP WITH  
HUMAN RESOURCE DEVELOPMENT STRATEGIES IN MANUFACTURING  
INDUSTRY**

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## ABSTRACT

Total quality management is playing an important role in helping organizations to become more resilient and competitive in the global market. A lot of organizations have succeeded and become global leaders in their business through the implementation of quality management. However, total quality management would not be effective without thorough understandings and undivided commitment by employees. Since there is a lack of study on the topic, this study seeks to understand the relationship between quality management maturity and human resource development strategies in manufacturing industry. Quality management maturity can be defined as the degree, extensiveness or quality of an organization implementation of quality management system or programs. It is very important to understand the relationship as it provides the understanding on how organizations shape their human resources to realize quality goals as their maturity increase. The data from two samples consisting of manufacturing companies and employees of an automotive company have been gathered using two sets of questionnaires. The result of hypothesis testing indicated that there is a positive relationship between quality maturity and human resource development strategies where the Pearson's  $r$  value is 0.752 for manufacturing companies and 0.644 for the automotive company; thus resulted in the rejection of  $H_0$  for both samples. In addition, the critical factors of quality management implementation were found to influence the variation found in human resource developments strategies;  $r^2$  value for manufacturing sample is 56.6% and for the automotive company is 41.5%. Based on the results, it can be concluded that as an organization's maturity in quality management implementation increases, the human resource development strategies in the organization can be expected to become more comprehensive. Employees' empowerment, involvement as well as providing the means for them to develop themselves through trainings are the most important human resource development strategies since it will increase employees' work motivation and satisfaction. Consequently, it can contribute to greater acceptance of changes needed in continuous improvement process as well as will increase organization's performance. In the future, a longitudinal study can be done to observe the causal relationship between quality management maturity and human resource development.

## ABSTRAK

Pengurusan kualiti menyeluruh memainkan peranan penting dalam membantu mengukuhkan sesebuah organisasi dan menjadikannya lebih berdaya saing di dalam pasaran global. Perlaksanaan pengurusan kualiti juga telah membantu banyak organisasi menjadi pemimpin global di dalam bidang perniagaan mereka. Walaubagaimanapun, pengurusan kualiti menyeluruh tidak akan berkesan tanpa pemahaman tentang kualiti dan sokongan sepenuhnya dari para pekerja. Kajian ini dijalankan untuk mengenalpasti hubungan antara tahap kematangan kualiti dan strategi pembangunan sumber manusia di dalam industri berasaskan pembuatan kerana masih terdapat persoalan yang perlu dikaji mengenai hubungan kedua-dua faktor tersebut. Pemahaman mengenai hubungan yang wujud adalah penting kerana ia dapat menjelaskan bagaimana sesebuah organisasi membentuk para pekerjanya bagi mencapai matlamat kualiti di tahap kematangan pelaksanaan pengurusan kualiti yang berbeza. Kematangan dalam pengurusan kualiti boleh didefinisikan sebagai tahap pelaksanaan dan kualiti pelaksanaan program atau sistem kualiti di dalam sesebuah organisasi. Data bagi kajian ini telah dikumpul menggunakan dua set borang soal selidik yang telah diedarkan kepada dua sampel kajian iaitu syarikat berasaskan pembuatan dan juga para pekerja sebuah syarikat automotif. Dapatan kajian ini menunjukkan bahawa terdapat hubungan yang positif dan signifikan secara statistik antara kematangan pengurusan kualiti dan strategi pembangunan sumber manusia di industri berasaskan pembuatan. Oleh itu,  $H_0$  telah ditolak di dalam kajian ini. Pekali korelasi Pearson bagi sampel syarikat pembuatan ialah 0.752 dan bagi sampel pekerja syarikat automotif ialah 0.644. Sementara itu, faktor-faktor yang kritikal dalam pelaksanaan pengurusan kualiti juga telah didapati mempengaruhi variasi yang terdapat di dalam strategi pembangunan sumber manusia di mana  $r^2$  bagi sampel syarikat pembuatan ialah 56.6% dan syarikat automotif ialah 41.5%. Berdasarkan dapatan kajian, antara aspek yang paling penting dalam pembangunan sumber manusia adalah meningkatkan autonomi para pekerja dan melibatkan mereka dalam proses pembuatan keputusan. Ia akan meningkatkan motivasi serta kepuasan kerja di kalangan pekerja dan seterusnya mampu meningkatkan prestasi organisasi tersebut. Pada masa hadapan, satu kajian yang bersifat jangka panjang boleh dijalankan bagi mengenalpasti hubungan sebab dan akibat antara kematangan pengurusan kualiti dan strategi pembangunan sumber manusia.

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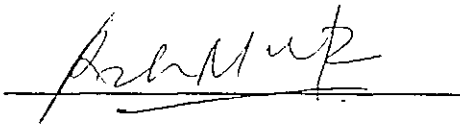
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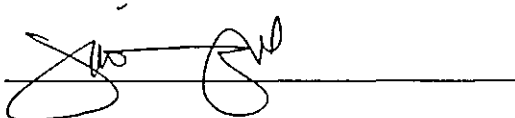
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## APPROVAL

This project paper is submitted to the Department of Mechanical and Manufacturing Engineering, Faculty of Engineering, Universiti Putra Malaysia, and has been accepted as partial fulfillment of the requirement for the degree of Master of Engineering Management (or Master of Manufacturing Systems Engineering). The members of the Examination Committee are as follows:



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## CHAPTER I

### INTRODUCTION

#### 1.1 Introduction

The nature in which today's business being conducted is characterized by uncertainties and intense competition as a result of rapid technological development, volatile economic environment, increased consumer power and globalization (Thiagaran *et al.*, 1999). In order for an organization to sustain and thrive in this dynamic environment, it has to put itself ahead of competitors by continuously improving its business processes. One way of achieving this is through the adoption of total quality management. However, it is important to note that, total quality management would not be effective without a thorough understandings and undivided commitment by employees. Suffice to say that total quality management starts with people; thus needs the people to fully embrace the philosophy and integrate it in their thinking in order to succeed.

This study seeks to understand the relationship between the degree and length of quality management implementation and human resource development strategies in manufacturing industry. Rao *et al.*, (1999) stressed that human resource development is at the heart of all total quality management program. Therefore, it is very important to understand the relationship as it can provide the understanding on

how organizations shape their human resources to realize quality goals as their maturity increase. The differences in human resource development strategies in organizations with different maturity level as noted by Rao *et al.* (1999), can be identified through the study.

Organizations will be expected to differ in quality management maturity along several dimensions which include supportive cultures for employee empowerment as well as their performance (Fok *et al.*, 2003). This study therefore, will be able identify the crucial factors in quality management implementation that should be taken into consideration in its implementation in order for an organization to progress towards a higher level of maturity. In addition, it will provide a guideline for manufacturing companies, specifically in Malaysia that seeks to enhance their human resource potentials through effective human resource development strategies so as to achieve superior business and quality performance.

In Malaysia, the intensification of interest in quality management can be witnessed in the 1990s when literally every sector of its economy started to implement the quality management philosophy in business activities (Thiagaragan *et al.*, 2001). According to Lasserre and Probert (1994), quality sophistication and expectation in Malaysia are better than in other growing economies of Asia and it is grouped with Japan in some quality dimensions. In addition, total quality management has become part of business thinking and many companies in Malaysia have adopted this concept in some form.

The manufacturing-based organizations in Malaysia have started to implement the total quality management for a considerable period. Therefore, it is appropriate to expect that they have achieved a level of maturity in the implementation. The maturity of an organization's quality management can be defined as the length, depth and quality of its implementation. It is important to distinguish between the length an organization has reported that it has been on total quality management and the quality of its implementation. This is because an organization may have claimed that it has been on quality management program for a long period, but in reality practices it superficially; or only part of the program.

Quality management maturity in organizations can be assessed in terms of the extent of the programs implementation and implementation period. Mature organizations range of formal quality management programs are from seven to twenty years in which a three year period is considered as the cutoff point between young and mature (Sousa *et al.*, 2001). In addition, the maturity can also be measured by the perceived use of quality management programs with the assumption that if quality is a culture in an organization, the programs should be widely implemented in various functional areas and employees are familiar with quality tools and techniques being used (Patti *et al.*, 2001, Li *et al.*, 2002 and Fok *et al.*, 2003). This chapter provides an introduction to the study and will be discussing about the problem that needs to be addressed, its objectives as well as the theoretical framework.



## 1.2 Problem Statement

While a lot of companies have tried to implement quality management in their organization and succeeded, a lot of them too, unfortunately met a dead end and abandon the program; unable to turn around or may be unwilling to. It raises questions of why and what. Why some of the companies failed and others able to make it? What have caused the poor results? A lot of companies which are implementing quality management practically follow a prescribed system with the introduction of quality standards and quality awards such as those introduced by International Standardization Organization (ISO). Furthermore, according to Motwani (2001), there is a universal set of practices in quality management that if implemented, will lead to high performance. Yet, why to some it is achievable and to others is not an easy feat? Many factors can be associated with such outcome and one of it may resides at the heart of the organization itself; its people.

The organizations that have successfully implemented quality management program may have better human resource development strategies compared to those that faced more difficulties. In addition, as an organization's maturity in total quality management implementation increases, it is appropriate to expect that its strategies are more comprehensive in order to facilitate the quality management requirement for continuous improvement. This assumption is made based on the socio-technical system theory that the changes in one or more systems in organization will consequently lead to changes throughout the organization (Li *et al.*, 2002). An understanding on quality management maturity and its relationship with other functions in an organization such as human resource development will be able to

provide the valuable insights on the factors that set the mature organizations apart in the quality of their implementation.

Previous studies on quality management maturity focused on the individuals' understanding of quality management concepts and any subsequent impacts to the nature of their job as well as their assessment of the organization performance (Rao *et al.*, 1999 and Yong and Wilkinson, 2001). However, little studies that focused on the human resource factor have been conducted to identify the relationship between quality management maturity and human resource development strategies in organization. Furthermore, there is no study on total quality management maturity for the Malaysia context. Therefore, it is in great interest of this project to conduct a study on the impact quality maturity on human resource development strategies in Malaysia's manufacturing industry. This study therefore, attempted to answer the following questions:

- RQ1:** What is the relationship between quality management maturity and human resource development?
- RQ2:** What are the human resource development strategies used by manufacturing companies in Malaysia?

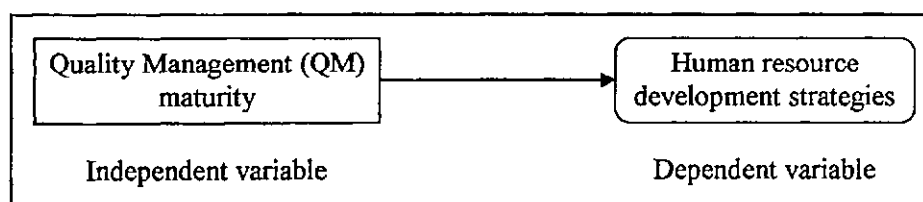
### 1.3 Research Objectives

The objectives of this study are:

- i. To identify the relationship between the level of quality management maturity and human resource development strategies in Malaysia's manufacturing companies.
- ii. To identify the human resource development strategies being used by manufacturing companies in Malaysia.

### 1.4 Theoretical Framework

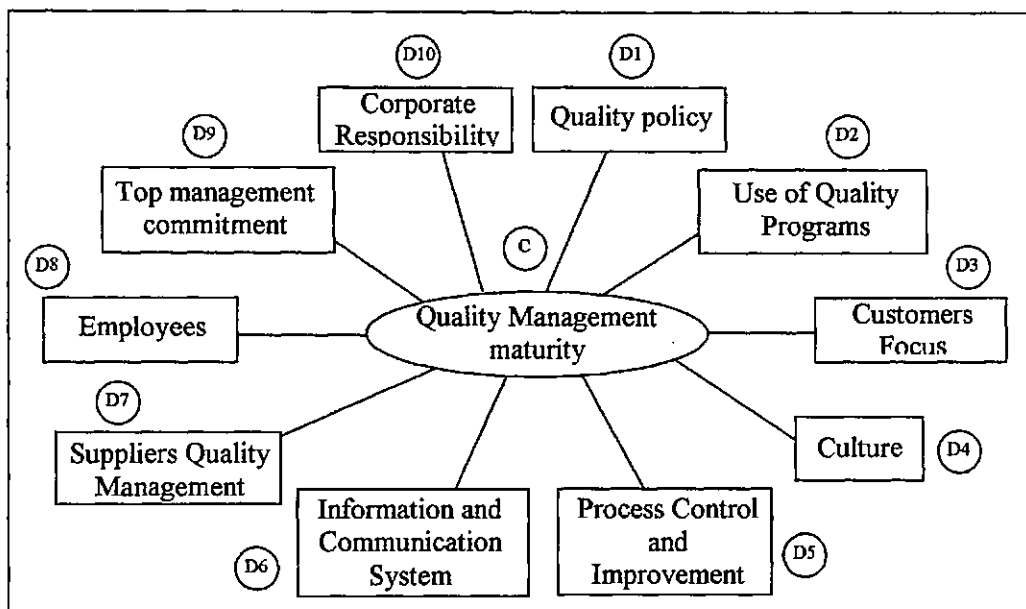
The theoretical framework for this study has been developed based on the review of literatures on quality management and human resource development. It seeks to identify the impact of quality management maturity on human resource development strategies in manufacturing industry in Malaysia. The theoretical framework can be illustrated as in **Figure 1.1**.



**Figure 1.1: Theoretical framework**

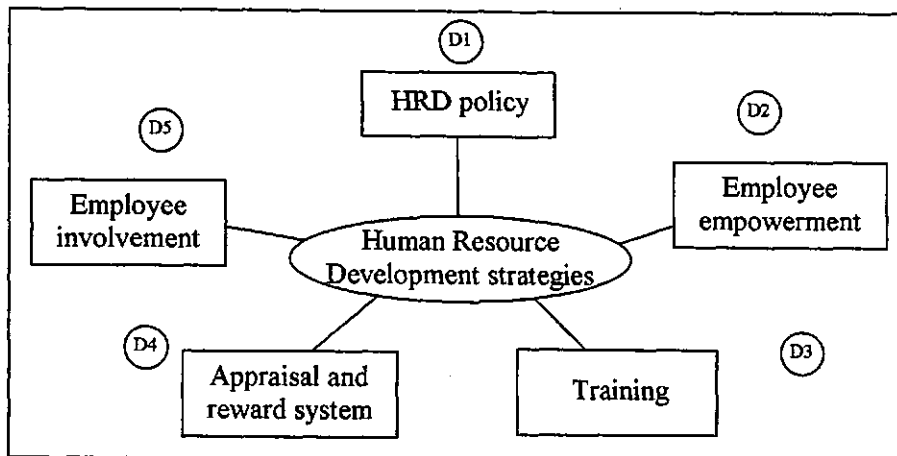
The variables' dimensions that have been studied were identified through the review of literatures (Ahire *et al.*, 1996, Zeitz *et al.*, 1997, Rao *et al.*, 1999, Zhang *et al.*, 2000, Yong and Wilkinson, 2001, Patti *et al.*, 2001, Li *et al.*, 2002 and Fok *et al.*,

2003, Singh and Smith 2006, Arif Hassan *et al.*, 2006 as well as Ooi *et al.*, 2007). The dimensions were used as a guideline in measuring the quality management maturity variable as well as human resource development strategies variable. In addition, the dimensions were very helpful in the construction of data collection instrument for this study. The dimensions for both independent and dependent variable are as shown in **Figure 1.2** and **Figure 1.3** respectively.



**Figure 1.2: Dimensions (D) of the quality management maturity concept**





**Figure 1.3: Dimensions (D) of the concept (C) human resource development strategies**

## 1.5 Hypothesis

Based on the identified variables, a hypothesis has been developed in order to answer the research questions. The hypotheses are as follows:

**H<sub>0</sub>:** There is no relationship between quality management maturity and human resource development strategies.

**H<sub>a</sub>:** There is a relationship between quality management maturity and human resource development strategies.

## 1.6 Scope

The scope of this study is on the impact of quality management maturity to the human resource management. It focused on the quality management practices in manufacturing industry in Malaysia. The manufacturing companies that have been

selected as the respondents for this study were those with at least three years of experience in quality management implementation. The three years period is chosen based on the cutoff point between young and mature quality practice. In addition, the companies must be certified by International Standardization Organization (ISO) or any quality award bodies.

### **1.7 Research Significance**

This study will benefit the manufacturing industry in Malaysia in terms of human resource development with respect to quality management implementation. With a general understanding that quality starts with the people, it is important to find out how mature quality organizations develop their human capital to support every quality initiatives that they adopt. By understanding the impact of quality maturity on the human resource management strategies, we will be able to identify the way organizations shape their quality journey. Consequently, the findings of this study are helpful in providing an understanding on the difference of human resource development practices between organizations with different maturity level.

### **1.8 Layout of Report**

This chapter discusses the problem that has been studied in this project. The objectives and hypotheses that were tested as well as its scopes have been provided in order to clarify the direction of this study. It will be followed by Chapter 2 that

seeks to understand the quality management maturity and human resource development concepts through the review of various literatures. The literature review provides the basis for the construction of the theoretical framework presented in Chapter 1. Meanwhile, Chapter 3 is about the methodology that has been used to answer the research questions. Chapter 4 provides the results of data analysis that will be discussed and compared with previous studies. This study will be concluded in Chapter 5 in which the findings were summarized and several recommendations were given.

## **CHAPTER II**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

This chapter discusses on the adoption of total quality management in organization and the human resource development factor through the review of research that has been conducted by various scholars. It seeks to understand how organizations develop their human resources as the total quality management implementation increases in maturity. This is to ensure that a clear theoretical framework can be obtained in order to understand the relationship between quality management maturity and human resource management strategies used in total quality organizations.

#### **2.2 Quality Management**

Quality management philosophy has evolved over the years as a result of growing complexity in products, services and key business processes. Mangelsdorf (1999) stated that quality has a long tradition in industry which indicates that the quality concept has long been introduced and implemented. According to the researcher, during the 1950s, the quality practices focused on quality control in