



# **UNIVERSITI TEKNIKAL MALAYSIA MELAKA**

## **A COMPARISON STUDY OF EXISTING COSTING SYSTEM WITH ACTIVITY BASED COSTING SYSTEM (ABC) AT A METAL INDUSTRY**

This report submitted in accordance with requirement of the Universiti Teknikal Malaysia Melaka (UTeM) for the Bachelor Degree of Manufacturing Engineering (Manufacturing Management) with Honours.

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JUDUL: A COMPARISON STUDY OF EXISTING COSTING SYSTEM WITH  
ACTIVITY BASED COSTING SYSTEM (ABC) AT A METAL INDUSTRY

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I hereby, declared this report entitled “A Comparison Study of Existing Costing System With Activity Based Costing System (ABC) at A Metal Industry” is the results of my own research except as cited in references.

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## **APPROVAL**

This report is submitted to the Faculty of Manufacturing Engineering of UTeM as a partial fulfillment of the requirements for Degree of Bachelor Manufacturing Engineering (Manufacturing Management). The member of the supervisory committee is as follows:

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(Assoc. Prof. Dr. Adi Saptari)

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## **ABSTRACT**

Nowadays, competitive among manufacturing companies in Malaysia are getting tense. There are four main factors determines the competitiveness; lowest cost, high quality, delivery on schedule as well as complying to environmental standard. Most of the manufacturers nowadays determine their cost of product based on direct cost and indirect cost. A typical weakness of this system is on tracing the overhead cost that can be distorting the product cost since the overhead cost has become larger proportion in product cost. In order to improve the current costing system, a new system was introduced and represent which named Activity Based Costing (ABC). This system is widely used in industry to control the product cost efficiently. This study was implemented in Small Medium Industry (SMI) of metal industry at Melaka. The manufacturer currently using the absorption costing system in order to determine the product cost. Based on the result of comparison between two systems, ABC is a more precise profit analyses, more accurate costing and better allocation of overhead.

## **ABSTRAK**

Perusahaan- perusahaan pembuatan di Malaysia pada hari ini sedang bersaing hebat. Terdapat empat faktor yang membolehkan setiap perusahaan menjadi lebih kompetitif iaitu, harga kos yang rendah, kualiti yang tinggi, penghantaran yang mengikut jadual serta menepati standart alam sekitar. Kebanyakan perusahaan pada masa kini menetapkan kos produk mereka berdasarkan kos langsung dan tidak langsung. Kelemahan biasa pada sistem ini adalah mengenalpasti kos tidak langsung yang boleh menyebabkan perubahan pada harga kos. Ini kerana kos tidak langsung sudah semakin tinggi peratusannya dalam harga produk. Dalam menyelesaikan kelemahan ini, satu kaedah baru yang dinamakan pengekosan berdasarkan aktiviti telah dibangun dan diperkenalkan. Kaedah ini telah diguna pakai secara meluas untuk menentukan kos sesuatu produk dengan lebih cekap. kajian ini telah dijalankan di sebuah perusahaan kecil dan sederhana berasaskan besi di negeri Melaka. Pada waktu ini, perusahaan ini menggunakan kaedah penyerapan kos dalam menentukan harga ko produk mereka. Berdasarkan perbandingan diantara dua system ini, pengekosan berdasarkan aktiviti didapati lebih tepat dan lebih baik dalam menetapkan kos tidak langsung.

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## **LIST OF ABBREVIATIONS**

ABC	Activity Based Costing
BOM	Bill of Material
D.M.LH	Direct manufacturing Labor Hour
FMS	Flexible Manufacturing System
JIT	Just In Time
PSM	Projek Sarjana Muda
RM	Ringgit Malaysia
TCS	Traditional Costing System
U.K	United Kingdom
U.S.A	United States of America
UTeM	Universiti Teknikal Malaysia Melaka

# CHAPTER I

## INTRODUCTION

### 1.1 Background

Nowadays, the global market competition leading all companies towards to altered commitment to successful in manufacturing industry. Costing is the process of estimating costs for items in a program. In view of the complexity of businesses and increasing changes in industry, trade and commerce, costing is becoming very important:

- (a) It assists management to make decision for example make or buy, whether to accept a special order and others.
- (b) It assists management in planning and control.
- (c) Costing assists management to appreciate scarce resources in the increasingly complex business operations.
- (d) Understanding costing assists in cost awareness, cost control / management.

Most recent manufacturing companies still use the traditional costing system (TCS) that were developed decades ago which radically different from today environment. Traditional costing system tends to distort product costs and lead to poor strategic decision making. Traditional Costing System focusing more on labor productivity may not applicable for the present day (Gunasekaran, 1999). There are three costing methods which are absorption costing, direct costing and activity based costing. One of the methods is Activity based costing (ABC). Activity based costing is a product costing approach that has emerged in the two last two decades, can be a powerful tool for

industrial marketing decision makers (Lere, 2000). ABC addresses the limitations of traditional costing system by identifying and calculates all the work activities and determines the costs of particular product accurately. ABC was primarily designed as a method of cost calculation, but it also provides management information which enables the management to see where the most important costs occur then helps in making decision.

## **1.2 Problem Statement**

Malaysia manufacturing companies today face the increasing competition on global market. These companies should react rapidly and produce low cost product to be competitive in this latest of environment. As manufacturing environments that moves to new technology and the products that manufactured are varied, the traditional cost systems report seriously distorted the product costs.

The company understudy is a supplier to the national telecommunication provider. The current costing method that was used by the company has been lead to the several problems to management of the company. The first problem is the lost of competitive and losing order by the customer due to uncompetitive price of the products. The problem rose from the failure to identify the accurate cost of each product produced by the company. The next problem is the margin of profit is not in line with number of increasing product produced.

To make an appropriate decision, the manager should have the accurate and up to date costing information. Traditional costing systems tend to distort product cost and lead to poor decision making. This is the reason why the new costing management is needed. The managers today should know the 'true' cost for a particular product. Incorrect cost information can become to an incorrect decision because not all of the cost have been taken into account.

### **1.3 Objective of Study**

The objectives of study are:

- (a) To understand the current process of costing system at the metal company.
- (b) To identify the area of improvement of the current costing system.
- (c) To implement the ABC costing system in calculating product cost.
- (d) To compares the benefit of ABC Costing Sytem with the existing system

### **1.4 Scope of Study**

Currently, the metal company understudy produces the electrical and telecommunication product. One of their products named Suspension Hook for telecommunication purpose. This project will study only to Suspension Hook and focus on the costing aspect. The method that will apply to obtain the cost is Activity Based Costing (ABC).

### **1.5 Project Outlines**

Based on the thesis for Projek Sarjana Muda (PSM) I, an organization has been constructed for the process flow of completion in order to fulfill course of Degree in UTeM. Below shows the format of the organization:

Chapter 1 formally gives an introduction to the project which is including objective, scope, and background. In this chapter, it describes the background of costing problem as the case study of company.

Chapter 2, this chapter begins with the literature review which explains the theories used in this project. Summarizing all the journals, books and internet webpage findings that related to the project based on Activity Based Costing.



Chapter 3, present about methodology of this report which have the information of procedure on the project conducted.

Chapter 4, show the result and discussion, in this chapter the data collected based on case study and analyzed stage by stage to show the good result. The data collection will be analyzed.

Chapter 5 is the conclusion of the project which summaries of the report and this chapter reference to the objective and scope of project as well give suggestions for the future work.

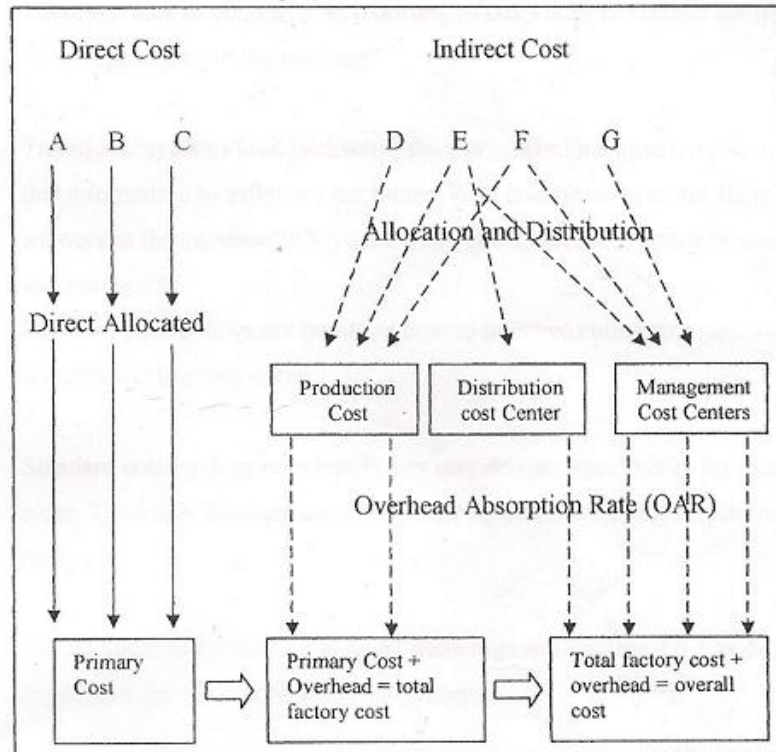
## **CHAPTER II**

### **LITERATURE REVIEW**

#### **2.1 Traditional Costing System (TCS)**

Traditional costing systems (TCS) or volume based costing are typically designed to allocate overhead costs from the general ledger to an entity with reporting responsibility (e.g. profit centers, Cost centers, or investments centers) and from that entity the product or services that it produces. The latter allocation of overhead costs to products is typically accomplished by prorating overhead costs on the basis of direct labor hours, material costs, or another measure of unit variables costs. Flow chart of traditional method is shown in Figure 2.1. The letters A, B, D, E, F and G are referred to activities.

Traditionally, costs have been allocated to products arbitrarily and have been averaged out across products. In a multi product enterprise this leads to unreliable cost information resulting in either under costing or over costing of products. The management cannot take effective strategic decisions based on this information.



**Figure 2.1:** Traditional Costing System Method (Escullier, 1997)

### 2.1.1 Problems in Traditional Costing System (TCS)

There are several problem raised and identified with the TCS. The common problems that have to carry out to the manufacturing company are:

- (a) Overhead cost “absorbed to cost unit by using labor hour/machine hour (the cost are unrelated to product being produced-not reflected by actual use of resources).
- (b) Using the average cost/ price.
- (c) In accurate information on product performance/profitability-difficult to make decision on make/buy decision, special offers, drop/continue decision, product mix decision.
- (d) Traditional cost accounting techniques for capturing cost are flawed; hence, allocation methods do not reflect the true cost across the operation of a business. As a result, operational management tends to ignore cost accounting information.

- (e) In traditional cost accounting system, there is a lack of customer focus. There is no differentiation between activity cost and added value to customers.
- (f) There is lack of alignment as reporting of costs does not reflect the true flow of process in the business.
- (g) Standard costing does not point out how to improve current processes or leverage the learning curve.
- (h) Standard costing does not identify key cost drivers, specifically for overhead costs. Therefore, the constant change and development of organizations is not examined.
- (i) Traditional cost accounting systems encourage dysfunctional behavior by supporting the 'the ship at all costs' mentality.

## **2.2 Refining a Costing System**

A refined costing system reduce the use of broad averages for assigning the cost of resources to cost products and provides better measurement of the costs of indirect resources used by different cost without considering on how differently the different cost product use indirect resources. There are four principal reasons:

### **a) Increase In Product Diversity**

Customers are demanding more customized products and, to differentiate themselves from competitors, companies are producing and selling many more product than in the past. The different products make different demands on the resources needed to produce them because of differences in volume, process and complexity. The resources demanded by these different products cannot be measured by a simple costing system that allocates indirect cost on the basis such as direct manufacturing labor hours. Using such a simple costing system will result in inaccurate and misleading products cost.

**b) Increasing The Indirect Cost**

Advances in product and process technology have led to increases in indirect costs and decrease in direct costs, particularly direct manufacturing labor costs. For instance, flexible manufacturing system (FMS) has significantly reduced the direct manufacturing labor cost of products. Due to this issue, by using the simple costing system that allocates indirect cost on the basis such as direct manufacturing labor hours, will be result the inaccurate product costs.

**c) Advances In Information Technology**

Costing system refinements require more data gathering and more analysis and make the costing system more detailed. Improvements in information technology and the accompanying decline in the costs of tracking data make it more cost effective to implement refinements in costing system. It is more practical now to create systems that have multiple pools of indirect costs for allocating costs to products.

**d) Competition In Product Markets**

As markets have become more competitive managers have felt the need to obtain more accurate cost information to help them make important strategic decisions, such as how to price products and which products to sell. Making correct pricing is critical in competitive markets because competitors quickly capitalize on a company's mistakes.

**2.3 Overview of Activity Based Costing (ABC)**

Activity-based Costing (ABC) is a method of assigning costs (John, 2002) which is from activities then to products based on each product's use of activities. Based on the concepts that products consume activities and activities consume resource (Cooper, 1990). ABC has received a great deal of attention as a cost management innovation. Numerous proponents of ABC argue that its methods are necessary to trace overhead

cost to cost object, and thus properly account for batch and product level costs (Cooper, 1990). Many also recommend using ABC to support process improvement and to develop cost effective product designs (Cooper and Turney, 1989). Although ABC systems are most often associated with manufacturing companies, they also can be applied in all types of organizations (Cagwin and Bouwman, 2000). The two fundamental components of ABC are costs and activities (Abrahams and Reavely, 1998). ABC on the other hand, focuses on activities performed in manufacture the product.

### **2.3.1 Costs**

Costs are based on resources or inputs. The cost correspondent to various manufacturing company charts of accounts generally consisting of salaries, materials, equipments, facilities and overhead.

### **2.3.2 Activity**

Activities are what an organization does. Activities are often routine in nature, using a planned set of procedures that are performed on a repetitive basis (John, 2002). Activities are the steps or sequences of events that converts input to output. Activities have a set of three distinct characteristics that define them. Every activity has inputs, a sequence of action and an output. An output may be something other than a product or service, e.g., a student graduating with a specific set of skills, and a certain level of competencies and knowledge (Abrahams and Reavely, 1998).

## 2.4 Growing Interest in Activity Based Costing (ABC)

Activity Based Costing (ABC) is being implemented by a growing number of companies around the world. The main motivation for a company to implement and use ABC is the needed for reliable cost information. Reliable product cost information is considered to be powerful tool in increasing a company, profitability and competitiveness. Specific ABC applications change from organizations to organization. A few organization use ABC as their basic, ongoing cost accounting system. But many applications are selective special studies within subparts of the organization such as business divisions or particular functions.

A study was implemented to survey the perceived usefulness, the speed, and the success of implementation ABC across seven countries.

**Table 2.1:** Number of Respondent by Country (Bhimani *et al.* 2007)

	Canada	France	Germany	Japan	Italy	U.K	U.S.A	Total
<b>No. of respondents</b>	35 (8.4%)	39 (9.4%)	73 (17.6%)	95 (22.8%)	32 (7.7%)	85 (20.4%)	57 (13.7%)	416

A mail survey was addressed to company in seven countries which are Canada, France, Germany, Japan, Italy, United Kingdom and United States. The questioner was sent to 500 largest companies in each country. Four hundred and sixteen questioners were sent back to the researcher. Table 2.1 shows the number of respondents for each country.

**Table 2.2:** Respondent Perceiving Potential Useful of ABC by Country (Bhimani *et al.* 2007)

	Canada	France	Germany	Japan	Italy	U.K	U.S.A	Total
<b>Number of respondents</b>	23 (85.7%)	37 (94.9%)	32 (43.8%)	82 (86.3%)	19 (59.4%)	52 (61.2%)	46 (80.7%)	291 (70%)

Table 2.2 indicates the significant different in proportion of company that perceiving ABC is useful. The French organizations response giving in the high proportion, according to Japan organizations and the smallest is Germany

**Table 2.3:** Stages of ABC by Country (Bhimani *et al.* 2007)

	<b>Canada</b>	<b>France</b>	<b>Germany</b>	<b>Italy</b>	<b>U.K</b>	<b>U.S.A</b>	<b>Japan</b>	<b>Total</b>
<b>Abandoned</b>	<b>1</b> (4.3%)	<b>1</b> (2.7%)	<b>0</b> (0.0%)	<b>3</b> (15.8%)	<b>2</b> (3.8%)	<b>2</b> (4.4%)	<b>57</b> (69.5%)	<b>66</b> (22.7%)
<b>Pilot ABCM</b>	<b>8</b> (34.8%)	<b>4</b> (10.8%)	<b>10</b> (31.2%)	<b>7</b> (36.8%)	<b>8</b> (15.4%)	<b>10</b> (21.8%)	<b>9</b> (11.0%)	<b>56</b> (19.3%)
<b>Use across units</b>	<b>9</b> (39.1%)	<b>8</b> (21.6%)	<b>16</b> (50%)	<b>5</b> (26.3%)	<b>29</b> (55.8%)	<b>25</b> (54.4%)	<b>5</b> (6.1%)	<b>97</b> (33.3%)
<b>Use in Majority of Unit</b>	<b>5</b> (21.7%)	<b>24</b> (64.9%)	<b>6</b> (18.8%)	<b>4</b> (21.1%)	<b>13</b> (25%)	<b>9</b> (19.6%)	<b>11</b> (13.4%)	<b>72</b> (24.7%)
<b>Number of respondents</b>	<b>23</b>	<b>37</b>	<b>32</b>	<b>19</b>	<b>52</b>	<b>46</b>	<b>82</b>	<b>291</b>

The analysis of the stages of ABC implementation by country appears in Table 2.3. The table show the proportion of organization at each stage is significant different. The Japanese and the Italian respondents abandoned ABC in a high proportion respectively 69.5 percent and 15.8 percent rather than other country.

The proportion of organizations that implemented a pilot ABC is 36.8% in Italy, followed by Canada 34.8% and the lowest rate is France at 10.8%. The average rate of pilot is 19.3%. The Japanese and the Italian respondents abandoned ABC in a high proportion respectively 69.5 percent and 15.8 percent rather than other country.

In the U.K and USA, 55.8% and 54.4% of the company respectively are using ABC across units while it is limited to 21.6% and France and 6.1% in Japan. For French respondents, 64.9% are using ABC in the majority for their units, but the proportion is 13.4 in Japan. Organizations implemented among the German, UK and USA respondents less than 20% implemented ABC across a majority of units.