CHAPTER VI

CONCLUSION AND RECOMMENDATION

6.1 Introduction

It is clear that organizations in new today's competitive environment require new form of cost information to conduct their business. Many organizations need information that shows what matters to its customers, reveals how profitable its customers and products are, costs a reasonable amount to report, identifies opportunities for improvement, and encourage actions that enhance meeting customer needs profitably. This is a new ways of measuring performance not available in conventional costing system. The conventional costing system is unable not only to provide accurate and useful information for managerial tasks but also mislead to wrong decision making. As a consequence, WFD encounters with ineffectiveness of conventional costing system. The company is unable to utilize current cost information in managerial tasks, decision-making, or even improving its business process.

This study is to approach the new form of cost information. Activity-Based Costing (ABC) is approached to provide accurate and useful cost information to assist in managerial tasks. ABC reveals more reliable picture of cost and enables management to identify opportunities for improvement. The study bases on CAM-I Cross. The cross provides two dimensional views, vertical cost assignment (ABC) and horizontal process (ABM) view. Vertical cost assignment provides insights of how diversity of products or customers reflects to product or customer cost structure. Horizontal process view (ABM) uses ABC information to provide insights of what causes costs to exist and how much processes cost. This facilitates activity and process analysis and eventually allows management to identify opportunities for improvement.

6.2 Steps of Developing ABC

The steps can be classified into 3 major steps. Those are developing activity model, performing vertical cost assignment view, and performing horizontal process view. Each step is summarized below.

6.2.1 Developing Activity Model

IDEF0 activity modelling technique is used as a tool to identify activities to determine input, output, control, and mechanism of each activity and to determine cause-and-effect relationships within the company business process. Activities identified will then given two keys information. Those are type of activity (product, customer, sustaining infrastructure, support) and value-added content (high, medium, low, none). In addition, the activities are mapped along with organizational structure to determine individual's responsibility through the process. Information about the activities will be used as the database for the next steps of this study.

6.2.2 Performing Vertical Cost Assignment

Performing vertical cost assignment is to trace the flow of costs from resources to cost objects. All resource costs will be reassigned to activities, and finally reassign activity costs to final cost objects. This step can be furthered in 3 steps as follow:

6.2.2.1 Organizing resource costs

All resource costs are collected by considering to the scope and objectives of the study. Due to resource costs collected are too many and details, it is necessary to organize those costs into appropriate groups in order to encourage assignment of costs to activities. The final resource costs are organized into 10 major groups. Those are direct materials, indirect materials, tools & equips and maintenance, manufacturing electricity, manufacturing water, salaries, direct labours, miscellaneous, transportation, and depreciation cost. Now, these 10 costs are ready to perform assigning resource costs to activities.

6.2.2.2 Assigning resource costs to activities

This step is to assign 10 cost groups to activities identified from developing activity model step. The assignment can be done by direct charging and estimation method. Indirect materials and tools & equipments and maintenance costs are assigned by direct charging. Manufacturing electricity, manufacturing water, salaries, direct labours, and transportation are assigned by estimation. After assigning, activities having same type are grouped together (product, customer, infrastructure sustaining, and support). Before going to assign activity costs to cost objects, it is necessary to assign the group of support activity costs to other activities due to they are not consumed by

cost object but other activities. In addition, depreciation and miscellaneous cost will be combined to the group of infrastructure sustaining activity costs. At this point, it could be said that assigning resource costs to activities are accomplished.

6.2.2.3 Assigning activity costs to cost objects

This last step of performing vertical cost assignment is to assign activity costs to cost objects. Cost objects are divided into products and customers. Product activity costs are assigned to product cost objects, and customer activity costs are assigned to customer cost objects. Assigning activity costs to cost objects can be done by activity cost driver. Output quantity of each activity cost driver is collected to determine activity cost rate, which can be calculated by dividing activity costs by output quantity. Assigning an activity cost to product and customer cost objects can be calculated by multiplying its activity cost rate with the number of output required by products or customers on that activity.

In this study, 5 products (Flywheel ZE1, HUB-KD, Sliders, Body 10DJ150, Flange Air) and 4 customers (SBM, KITZ, EBRO, KKC) are given as product and customer cost objects respectively. The result of assigning activity costs to these cost objects shows how diversity of products reflects to the proportion between direct labour costs and activity costs.

The study goes further to determine product unit cost. Each product unit cost is constructed with product activity costs, direct material costs, direct labour costs, customer activity costs, and infrastructure sustaining activity costs. Therefore, it requires three more cost assignments. The first is to assign customer costs to product costs. The second is to assign direct material costs to product costs. The third is to assign infrastructure sustaining costs to product costs. As a result, more reliable picture of cost structure is enabled. Vertical cost assignment reveals how diversity in products reflects to different cost structure. This useful information provides greater visibility (turning up the lights in a dark room) and enables management to identify opportunities for improvement.

6.2.3 Performing Horizontal Process View

The final step is to use ABC information to analyze activities and identify opportunities for improvement. The same activity costs will be oriented in the context of the time-based horizontal process view or the business process flowchart. Pareto analysis is approached to determine where the area is worthy to make an improvement. As a result, A2313 (melt metal) and A2334 (make AMF sand mould) are such area because they shares about 59% of manufacturing process costs. The analysis indicates that to improve business process as a whole, activity cost rate of both activities is needed to reduce. Their activity cost rate can be reduced by increasing the number of output quantity of both activities. Those are number of charge and sand mould. The way to increase both output quantity can be done by reducing melting process cycle time. It could be said that reducing melting cycle time is a way to reduce both activity cost rate and eventually to meet the goal of business improvement.

Four methods are analyzed to be the mechanisms for time-reduction in melting process. These methods are converted into action. Performance measurement is established to evaluate how well these two activities perform between before and after implementation. As a consequence, the result indicates that both activity cost rate are reduced by 4.21% and 6.72% respectively, and net profit are increased from 16.40% in Jun – Nov 05 to 23.08% in Dec 05. It can conclude that the company can meet the goal of business process improvement.

6.3 Discussion and Recommendation

This section will discuss the problems that occur during performing this thesis and recommend the solutions for those problems. Several problems and their solution are discussed below.

- **Problem in collecting cost data**

Collecting cost data requires understanding of which cost elements are used in which activities and where those cost elements exist in general ledger. The problem is that accounting staff understands where cost elements exist in general ledger but do not understand where such cost elements are used for or in which activities. However, the ABC developer understands where cost element is used in which activities but does not understand where cost element exists in general ledger. As a result, collecting cost data

and assigning these costs to activities become complicated task and finally spend a lot of time. As a result, it could be said that understanding in both operational data and financial data of both persons is necessary in developing ABC. Accounting staff needs to educate in operational perspective. In contrast, ABC developer needs to educate in financial perspective.

- **Problem in organizing resource costs and reassigning them to activities**

During developing ABC, organizing resource costs from Jun – Nov 2005 and reassigning all of them to activities including assigning support activity costs to other activities was done manually. Certainly, this task is complicated and spends a lot of time. However, it is clear that assigning resource costs to activities has specific form. Specific resource costs are assigned to specific activities. Even though some resource costs are assigned to more than one activity, they are assigned in specific ratio. Consequently, approaching computer program can assist to reassign resource costs to activities automatically. With computer based, assigning resource costs to activities can be performed as soon as financial statement of each month is established. It can help in not only reducing time but also increasing accuracy.

- **Problem in implementation**

The problem during implementation is about resistance of change. The people in chief and assistant chief level are willing to participate for this improvement program. However, the people in operator level tend to resist this program. They try to negotiate the benefits they should deserve. This problem could be the major obstacle for long run. For long term plan, the company should set the target such as the number of charge and number of sand mould per month. If they can achieve the target, the company will provide incentive. In addition, the motivation and empowerment program should be established to create sense of ownership on employees and pride of their own responsibilities.

For further study, finishing process should be the next area to analyze and identify opportunities for improvement. This process cost is shared about 17% of total manufacturing process cost. However, the key important is not cost but rather time. The slope between cost and time in this process is flat. It is because this process deals with

complexity of product. Different products require different process to finish. By investigating, time mostly is wasted from waiting and unnecessary moving. Concurrent engineering and process reengineering could be approached to reduce lead time and cost in finishing process.