

CHAPTER I

INTRODUCTION

1.1 Thesis Background

In today's business environment, the external conditions have changed remarkably and rapidly because of global competition, technological advances, and access to low-cost information systems. As a consequence, many businesses encounter not only high competitive market, economic pressures, reducing costs from customer, etc., but also need to keep the value for the customer. These factors impact to organization's performance especially in time, cost, and quality. As a result, the need for process improvements becomes crucial in today's business. Organizations everywhere need to improve their own process to make them better, faster, and cheaper to take competitive advantage and, perhaps, to survive in market place.

However, to achieve the goals of business process improvement, it is important to deeply understand of what is being done today and what is expected to transform processes tomorrow. In addition, it is essential that managers have to fully understand the cost, time, and quality of activities performed by employees or machines throughout and entire organization. In sum, new ways of conducting business require new ways of measuring performance. The world-class company needs information that:

- Shows what matters to its customers (such as quality and service).
- Reveals how profitable its customers and products are.
- Costs a reasonable amount to report.
- Identifies opportunities for improvement.
- Encourages actions that enhance meeting customer needs profitably.

(Peter B.B. Turney, 1996)

The problem is that conventional cost system fails to do any of these things well. Moreover, conventional cost system actually hides problems and fails to identify opportunities. As a consequence, organizations are misled to make the wrong decisions for instances selling the wrong products, mispricing products, or improving the wrong

things. It can conclude that conventional cost system is not acceptable in today's competitive world.

1.2 The Company Background

WANTANA FOUNDRY CO., LTD, WFD, is a foundry manufacturing in grey (FC250) and ductile (FCD450) cast iron. With the automatic moulding line (120 moulds/hr) and manual moulding line, electrical furnace (1ton/900kw), 97 employees, and running on both day and night shift, the maximum capacity can meet 600 tons per month. WFD currently provides products about 101 products to 20 different customers. The core market is automotive market, which is shared about 70% of capacity.

1.3 Statement of the Problems

Similarly, the need for business improvement becomes crucial for the company. However, the current costing system used in the company cannot provide useful and accurate information to assist in decision-making and encourage business improvement. Moreover, the company encounters the consequence of misleading to wrong decision by current costing system as same as other business does.

Currently, there are two cost information used in the company. The first information is reported by profit & loss account. The information shows the expenses of 5 major cost groups such as direct labour, direct materials, indirect materials, manufacturing expenses, and administrative expenses as shown in figure 1.1.

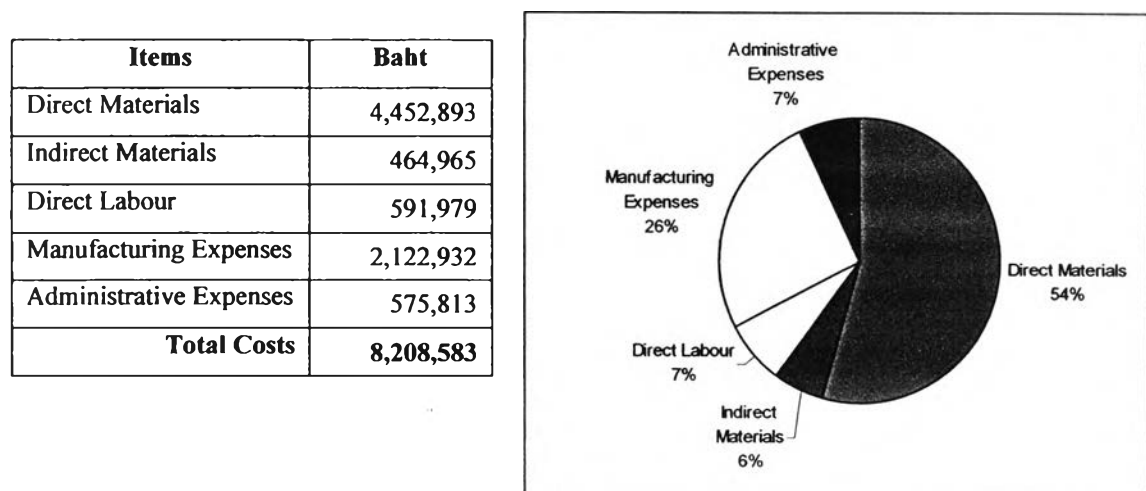


Figure 1.1 Cost information from profit & loss account August 2005

The other cost information is cost calculation account used for calculating cost incurred in each product unit. The calculation classifies cost into variable and fixed cost. An example of cost calculation of Flywheel ZE1 is shown in table 1.1 and 1.2.

Variable Cost	(Baht/Ton)
Direct Materials	13,033
Indirect Materials	1,530
Electricity	3,000
Transportation	400
Total	17,963
(Yield 60%)	22.94 Baht/Kg

Table 1.1 Variable cost of Flywheel ZE1

Fixed Cost	Baht/Month/200Ton
Salaries	300,000
Direct Labour	500,000
Administrative Expenses	415,000
Maintenance Expenses	100,000
Depreciation	250,000
Total	1,565,000
(1 Mont/200 tons)	7,825 Baht/Ton
	7.83 Baht/Kg

Table 1.2 Fixed cost of Flywheel ZE1

Variable cost consists of direct materials, indirect materials, electricity, and transportation. For this product, to produce 1 ton melted metal, it will cost 17,962 baht. However, the product has yield 60%. It means that 1 ton melted metal is transformed to product 600 kg and gating system 400 kg. The gating system will be reused in melting process as return scraps, which has value 10.5 baht/kg. Thus, cost incurred to produce product 600 kg will be $(17,963 - 400 \times 10.5) / 600 = 22.94$ baht/kg.

Fixed cost consists of salaries, direct labour, administrative expenses, maintenance expenses, and depreciation. Total fixed cost per month is 1,565,000 Baht/month. It is assumed that the company can produce finished goods about 200 tons per month by average. Thus, the total fixed cost is 7,825 baht/1 ton or 7.82 baht/kg. Consequently, the total cost (variable and fixed cost) incurred in this product is 30.76 baht/kg.

1.3.1 Mistakes in current costing system

There are some mistakes in these two cost information described as follow. Firstly, there is no linkage between two cost information. On the other hand, there is no connection between financial and operational information. Profit & Loss account does not classify cost of each product produced in each month. It does not indicate which product costs over or under by how much comparing to cost calculation account. Thus, the company has no ideas which product and market makes profit or loss, and this leads company to focus on wrong markets and to service on wrong customers.

Secondly, the company assigns fixed cost corresponding to the weight of finished good produced in a month. Approximately, the company can produce finished good about 200 tons / 1 month. Therefore, this value is determined as a fixed rate. In reality, the amount of finished goods in each month is inconsistency. From history, it can vary from 180 to 300 tons. Thus, fixed cost can vary from 5.22 to 8.69 baht/kg or 33.33% to -11.11% as shown in table 1.3. As a result, to assign fixed cost relating to finished goods weight, there is no reliable picture of what product cost really is.

Tons	Baht/kg	Variation
180	8.69	-11.11%
200	7.83	-
300	5.22	33.33%

Table 1.3 Fixed cost variation.

Thirdly, direct labour in fixed cost is assigned at the same rate (2,500 baht/ton) to all products. However, different market requires different process and quality, especially in finishing process. This means different process requires different amount of labour. For instance, in figure 1.2, an automotive and compressor part requires different process to finish.

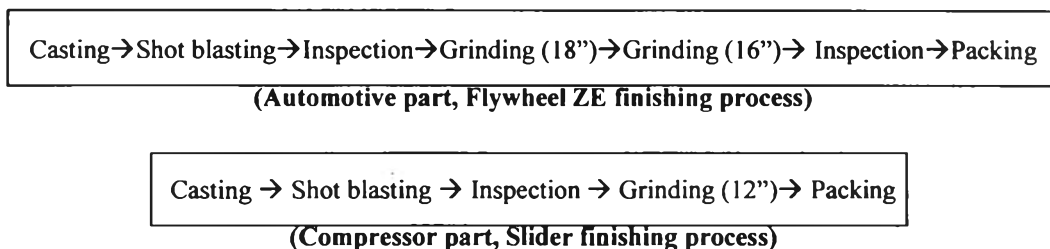


Figure 1.2 Flywheel ZE1 and Slider finishing process

It indicates that automotive product consumes labour more than compressor market does. Definitely, cost to finish automotive product should be more than that to finish compressor product. Thus, direct labour cost should be determined as variable cost rather than fixed cost. However, it is not true for all cases. Valve product requires the same finishing process as compressor product, but valve product consumes a lot of grinding and inspection time because its complexity is much higher, and its cost is probably more than automotive product even its process is shorter. This case shows that cost does not depend on the amount of direct labour, but the complexity. The unreliable and distorted information leads the company misunderstanding and making wrong decision.

Finally, salary cost such as engineering, quality assurance, and planning are assigned as fixed cost. However, these tasks are not performed directly on the amount of finished goods produced, but they are performed on batches of products. For examples, pattern preparation, an engineering task, will cost only one time when one batch of one product is produced. Similarly, microstructure testing, a quality assurance task, will cost one time for one batch of one product. This is the other case showing that the company is working with the distorted information.

In conclusion, the problem of the current system is that the assumption of the current system assigns cost directly to product units rather than to activities first, then from activities to product units. Thus, the system is unable to identify cause-and-effect relationships between costs and their sources. It tells only what the company is spending, but it does not tell why the company is spending it.

In summary, the current costing system is unable to

- Reveal accurate cost information
- Track cost of activities and processes
- Unable to show what matters to its customer such as quality
- Unable to reveal how profitable its customers and products are
- Unable to identify value and non-value added activity
- Unable to identify opportunities for improvement

It can conclude that the current costing system is inappropriate for business process improvement purpose. WFD needs a new form of costing system to achieve the goal of improvement. As a result, Activity Based Costing (ABC) is such a costing system.

1.3.2 Activity Based Costing

Activity Based Costing is a new form of costing system. The underlying assumption is that activities drive the cost and are driven by the product or customer. This significantly differs from the conventional costing systems, which built on the assumption that product drives the cost directly as shown in figure 1.3.

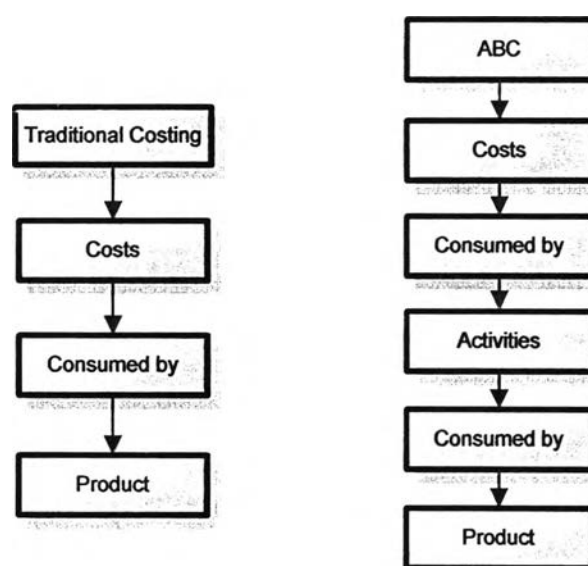


Figure 1.3 Traditional Costing Vs Activity Based Costing

In details, the major distinction between conventional costing system and ABC is that ABC uses non-single unit production volume cost drivers to trace or reassign activity costs to products or services. In contrast, conventional costing system allocates all indirect, variable overhead costs to final cost objects by assuming the overhead's consumption varies at exactly the same rate as a single unit of volume, like a labour hour, a machine hour, an assembled unit of output, or a dollar of purchased material. With ABC, an activity cost driver stated in terms of a unit of output is used to compute a cost rate for each activity. Consequently, the activity cost is traced or reassigned to a unique cost object on the basis of how many units of output each activity consumes during a defined period.

(Gary Cokins, 1996)

Typical benefits of Activity-Based Costing include:

- Identifying the most and least profitable customers, products and channels.
- Determine the true contributors to and detractors from financial performance.
- Accurately predict costs, profits and resource requirements associated with changes in production volumes, organizational structure and resource costs.
- Easily identify the root causes of poor financial performance.
- Track costs of activities and work processes.
- Equip managers with cost intelligence to drive improvements.
- Facilitate better Marketing Mix.
- Enhance the bargaining power with the customer.
- Achieve better positioning of products

(http://www.valuebasedmanagement.net/methods_abc.html)

Activity Based Costing enables manager to see how to maximize shareholder value and improve corporate performance without sacrificing the value for the customer. Moreover, ABC reinforces the continuous improvement process. When implemented, ABC will makes the employees, across functions, to understand the various costs involved, which will in turn enable them to analyze the cost, identify the value added and non value added activities, and implement the improvements and realize the benefit. Consequently, Activity Based Costing plays a key important role for business process improvement. It could be said that

“It is inevitable that all organizations will eventually rely on some form of an ABC/M information system to assist in effectively managing their affairs.”

(Gary Cokins, 2001)

1.4 Objective of study

The objective of this thesis is

- To develop Activity Based Costing model in the company to provide more accurate and reliable of cost information.
- To use ABC information for improving business process focusing on time and cost reduction.

1.5 Scope of study

This thesis will focus on entire organization.

1.6 Methodologies

- Studying related literatures.
- Developing Activity Model by IDEF0
- Developing ABC/ABM
 - Performing Vertical Cost Assignment (ABC)
 - Collecting and organizing resource costs
 - Assigning resource costs to activities
 - Assigning activity costs to cost objects
 - Determining product unit cost.
 - Performing Horizontal Process View (ABM)
 - Analyzing activities
 - Identifying opportunities for improvement
 - Implementation and evaluation
- Conclusion and recommendation for the further development
- Write up thesis and submit

1.7 Expected Results

- The company will have a more accurate costing system.
- The company will use ABC as a tool to assist managerial tasks to meet the goal of business process improvement.