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## Competitive Price Strategy with Activity-Based Costing — Case Study of Bicycle Part Company

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### Abstract

Bicycle parts industry is a highly competitive industry, especially product components often adopt a low price strategy. The case company losing competitive advantage because of higher list price than other companies in Taiwan. The case company analyzes the manufacturing cost structure in order to promote the price competitive power.

The case company re-exams the manufacturing process carefully. There are three processing stage for product manufacturing, from raw materials processed into parts level, assembled parts into components, and assembles components into bicycle finally. The customized product causes different manufacturing process that will cause multiple resource expired to drive variant cost structure. The complicate cost structure might affect price strategy to make. Therefore this paper explores cost calculation methodology for more accurate cost information than the traditional volume-based costing (VBC).

The paper uses Activity-Based Costing (ABC) approach with two stages to allocate and calculate the manufacturing cost which is based on resources expired of process activities. By comparing the cost information between VBC and ABC approach, the research findings indicate that current VBC approach distorts cost structure because of single cost drive had been chosen, therefore, cross-subsidization among manufacturing cost structure among variant product. Secondly, ABC approach provides more accurate cost information that will help to set the competitive price strategy of the product that is great contribution to increase enterprise's profitability and competitive power. The paper look forwards to implement Activity-Based Costing approach which the product are variant and manufacturing process are complicate of the enterprise and industry.

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**Keywords:** Volume-Based Costing (VBC); Activity-Based Costing (ABC); Bicycle parts industry, Products Pricing Strategy.

### 1. INTRODUCTION

The technology of bicycle industry has been developed for 30 years in Taiwan, and been named global bicycles Kingdom. The fierce competition global market with low price strategy, China and Vietnam, leads building oversea production bases of Taiwan. The rapid progress of technology and skill lead the synchronous progress of manufacturing process that causes the usage of automated production equipment widespread. The labor intensive manufacturing process is changed. The ratio of cost structure changed into high ratio of manufacturing overhead and low ratio of direct labor cost. The precise cost

information is cornerstone of strategy management to help senior manager and owner to make the competitive decision.

### 2. LITERATURE REVIEW

The literatures includes: bicycle industry, Volume-Based Costing (VBC), Activity-Based Costing and Management (ABC/M), and case study.

#### 2.1 Bicycle industry

There are various types of bicycle products, includes road racing cars, general commuter cars, mountain bike (mountain bike), folding carts, baby carriages, electric bicycles, and

other bicycles. The parts and components of bicycle are frame, flywheel, hub, front fork, seat cushion, chain, pedal, fender, transmission, asbestos brake, crank gear, seat tube and handlebar.

The bicycle industry develop to be an export stage with large number of production in exchange for meager profits during 1970s to 1980s. The mass bicycles manufactured by Taiwan had throughout the global bike market quickly, and gained the reputation of bicycles Kingdom. Yet, the vicious competition, and the motorcycle industry arises that drive bicycle industry expand the global market with low price strategy in domestic in recent year.

## 2.2 Volume-Based Costing (VBC)

The Volume-Based Costing is developed in the early 19th century. The main cost with direct labor and direct materials are high proportion with 80% to 85% of manufacturing costs, manufacturing overhead is relatively low with 10% to 15% in VBC system. The most commonly allocate bases for indirect cost are: volume of products, number of direct labor hours, cost of direct labor, and the number of machine hours.

Cooper and Kaplan [1] indicate that the Volume-Based Costing system distorts the product cost due to lack of timing and causal relationship with resources expiring during manufacturing process. Zhu Baiwei [2] believes that the Volume-Based Costing information not be able to provide the correct relevance for decision planning and controlling. The cost information is one of important cornerstone of price strategy to achieve the profitability goals.

## 2.3 Activity-Based Costing (ABC)

Cooper, Kaplan extended the notion of Activity-Based Costing (ABC) to academia and the empirical study [1]. Activity-Based Costing is an activity analysis method developed to understand the indirect support costs of decision management or operations. ABC model built up as a single-faceted model initially. The advantage of the costing system provides the accurate cost information which is based on the production process and activities [1] [2]. Turney proposed two-faceted model for three years later [3].

The single-faceted model mainly constructs the causal relationship between product cost and resource consumption, and traces back to the cost object according to the cost driver of the activity [4], and calculates the cost of the manufacturing or the cost of selling and administration.

The appropriate cost-driver should have: (1) cause and effect relationship between activity and costs, (2) behavior impact, (3) measurable, and (4) Predict or explain an activity's use of resources [1].

The two-faceted model is composed of two perspectives: cost allocation and procedure view. The concept of cost allocation is to extend the concept of the single-faceted model. As for the procedure view, it is mainly to explore the causal relationship between resource consumption and activity performance. Two-faceted model is shown in fig. 1.

Raffish and Turney built-up Activity-Based Management model in 1991[5]. The model includes Activity-Based Costing (ABC), and Activity-Based Management (ABM). The ABC database help to lead the way for enterprises to upraise the core competency with efficiency and effectiveness.

## 2.4 Case Study Method

Case study is descriptive study describing special issues and characteristics of the research design, and is qualitative study also [6]. Focus on a limited number of events, issues and interrelation. Because of the detail discusses in a small number of samples, the samples can be used as the main reference for decision making and judgment. Case study method will focus on the development of entire process and causal factors in enterprise operation research. The main purpose of case study is to manage the various situations, access the causal factors in detail, or to realize the cause-effect relationship between each other's.

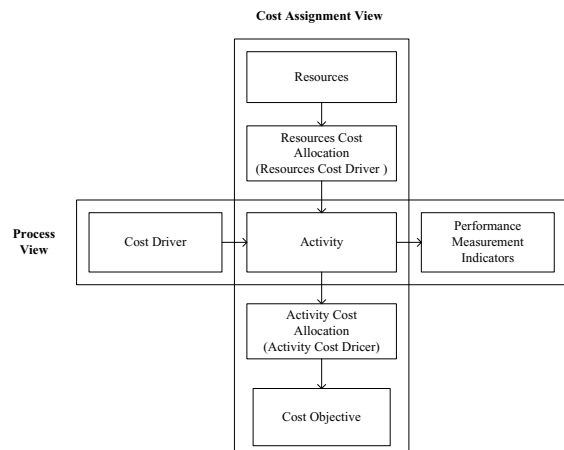


Fig. 1 Two Dimensional Activity-Based Costing Model

The case study researchers examine different problems which is existed in the case company. They collect, interview, and observe data with long time period. The differences in empirical approach lies in the fact that the relevant information acquired by the researcher is from the objective observation rather than the subjective participant. Therefore, case studies are generally considered to be a more objective way.

## 3. METHODOLOGY AND RESEARCH FLOW

The implementation process of ABC system is described as following and is presented in Figure 2.

- Step 1 Set up the goals of bicycle parts ABC system implementation. The bicycle parts industry must define the main objective of the implementation of Activity-Based Costing, and then calculate the accurate product cost.
- Step 2 Organize the ABC work team: Team members should have diverse background and multiple professional perspectives in different departments of the company.
- Step 3 Bicycle parts manufacturing flow analysis: team members should interview senior managers and operators for manufacturing process and conversion activities.

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