

Target Costing in Manufacturing Firms in Thailand

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Abstract

The long-term financial success of any business depends on whether its prices exceed its costs by enough to finance growth, provide for reinvestment and satisfy shareholders. To achieve a sufficient margin over its costs, target costing has evolved as a standard instrument of cost management. This article presents the potentialities of using target costing strategy in the Thai market. A questionnaire survey is used to identify manufacturing firms in Thailand that have adopted target costing, to explore their approach to implementing it and to identify the success factors behind implementation. It is found that about 50 per cent of respondents practiced target costing as a tool to manage their firms' targeted profits, and the majority of them implemented target costing for their new-launch products and for redeveloping existing production. The success factors in implementing target costing of these firms in Thailand underline the support of top management as the first key factor, followed by an empowered project manager and, thirdly, the proper tools and information systems. Unquestionably the success of implementing target costing needs cross-functional understanding. As a result, the firms that have adopted target costing understand the product concept and see quality improvement and cost reduction in their firms. The result from this research provides us confidence that target costing could be one of the major keys to long-term business survival, growth and prosperity in a competitive and rapidly changing environment in Thailand.

Key words: target costing, manufacturing firms, cost, price, prices and costs relationship

1. Introduction

In a severe competitive environment, the traditional pricing principle – as determined by cost of materials, labor and overhead, plus a desired profit – may not be an appropriate approach in pricing products. Target costing discipline was suggested first in Japan and used as an alternative to the traditional principle. As a cost management tool for reducing the overall cost of a product, target costing is a pricing method used by firms, especially manufacturers. As a potentially innovative management accounting tool, target costing is used during the planning stage but before the producing or launching of new products. By determining costs in a proactive and future-oriented manner, the firms can consider altering product designs before they enter the manufacturing process in order to ensure that the company earns reasonable profits on all new products, alternatively dropping a product design if it cannot meet its cost targets. Target costing has been used much in Japan and the Netherlands, but rather loosely outside those countries (Dekker and Smidt, 2003). Their study reveals variations in the use of target costing. Some Japanese companies, such as Toyota, are beginning to reassess their use of just-in-time (JIT) production systems. Problems are beginning to emerge, including environmental effects. Furthermore, while it is recognised that JIT has achieved considerable cost reductions at the production stage, many Japanese companies are looking for cost reduction opportunities in other (earlier) stages of the process of bringing new products to market (Yutaka, 1993). Faced with a volatile business environment due to advancements in technology, changes in customer tastes and an increasing introduction of new products, companies adopting target costing must possess dynamic capabilities to help them stay competitive (Wu, 2010). Merely keeping costs low and to targets may help companies survive, but staying competitive in an ever-increasingly competitive environment while possessing dynamic capabilities and the ability to nurture them are important characteristics of successful companies. There is a lack of conclusiveness on the usefulness and benefits of using target costing (Ratray *et al.*, 2007). Dekker and Smidt (2003) call for more empirical research on its characteristics. Based on research on three European countries, Everaert *et al.*, (2006) identified important characteristics of target costing. The adoption rate of target costing by manufacturing firms ranges from less

than seven per cent in New Zealand (Adler *et al.*, 2000) to 59.4 per cent in the Netherlands (Dekker and Smidt, 2003). Chenhall and Langfield-Smith (1998) find 38 per cent of Australia's largest manufacturers use target costing, while Joshi (2001) establishes that 35 per cent of a sample of Indian manufacturers has adopted the practice. Research on the practice of target costing in Asian countries remains relatively unknown.

This study aims to explore the use of target costing, the characteristics of the firms that have adopted it, and the reasons and benefits of using it in Thailand.

1.1 Problem statement

Although research shows that target costing is used worldwide (Adler *et al.*, 2000; Dekker and Smidt, 2003; Guilding *et al.*, 2000; Joshi, 2001; Nicolini *et al.*, 2000), there has been scant literature on target costing (Ratray *et al.*, 2007). Amid this scant research (Ratray *et al.*, 2007), no paper has been found that explains a standard set of characteristics of target costing, although different characteristics have been attributed to it (Cooper and Slagmulder, 1997; Kato, 1993; Kato *et al.*, 1995; Monden and Hamada, 1991). Everaert *et al.*, (2006) identified eight common characteristics of target costing practised by three European companies, but there is hardly any literature on target costing practised by Asian companies.

There is a lack of conclusiveness on the usefulness and benefits of using target costing (Ratray *et al.*, 2007). Target costing is supposed to ensure that only profitable products are introduced to markets (Cooper, 1995; Cooper and Slagmulder, 1997). Yet empirical research shows that Australian manufacturers do not perceive target costing as useful (Chenhall and Langfield-Smith, 1998), while Joshi's (2001) study indicates that Indian manufacturers perceive it as beneficial.

Companies adopting target costing must possess dynamic capabilities to help them stay innovative and competitive (Wu, 2010). Very little study has been conducted on the relationship between dynamic capabilities and target costing, even though both share the same basic underlying principle: target costing and dynamic capabilities comprise a firm's responses to maintain its competitive edge in an intensely competitive environment.

Consideration also has been given to cultural differences in the new product development process (Liker, Sobek, Ward, and Cristiano, 1996, Lynn, 2002, Wasti and Liker, 1999). Certainly, most organisations endeavor to create new products and services that have a high potential profit. Thus, the cost of an organisation's products and services is a fundamental concern of upper management, such as among CEOs (Kearney, 1998 cited in *The Future of Purchasing and Supply: A Five- and Ten-Year Forecast*).

In Thailand, there is also a lack of study about target costing. The authors are convinced that implementing target costing could be found in the pages of Thai business history, but in different stages and strategies. Such an environment in the Thai market, where agriculture, processed food and other consumer production sectors are mainly emphasised with less emphasis on technology, different approaches may be found when compared with the implementation of target costing in other countries. Therefore, in such circumstances target costing is even more important to enhance profitability so as to meet financial goals.

1.2 Research objectives

This study aims to explore the practice of target costing in Thailand. The objectives are:

1. To explore the characteristics of target costing as practiced by manufacturing firms in Thailand.
2. To explore the approaches to using target costing as practiced by manufacturing firms in Thailand.
3. To identify the success factors for implementing target costing in Thailand.

The expected result of this research will provide a greater understanding of how target costing is being used in Thailand, as well as adding to the scant research on target costing. The findings in the expected differences of applying target costing principles used in other countries would be helpful for firms implementing or using target costing systems. This would not only add knowledge to the target costing literature, but also affect practitioners by creating awareness of the problems of implementation and the importance of possessing and nurturing dynamic capabilities.

1.3 Scope of the research

The research will focus on Thai manufacturers in the nation's industrial areas: Bangkok Metropolitan Region, Central Region, North Region, South Region, East Region, Northeast Region and West Region. The focus on these manufacturers will be on industrial sub-sectors as classified by the Stock Exchange of Thailand (SET).

- Automotive (AUTO)
- Industrial Materials and Machinery (IMM)
- Paper and Printing Materials (PAPER)
- Petrochemicals and Chemicals (PETRO)
- Packaging (PKG)
- Steel (STEEL)

Business size selection for this study is medium to large, both unlisted and listed on the SET, where listed companies normally are required to have capital shares exceeding 500 million baht; the remaining samples were selected based on sector and business size. The questionnaire surveys the practice of target costing from 2007 to 2011.

2. Literature review

Target costing originated in Japan in the 1960s, but became widely recognised as a major factor for the superior competitive position of Japanese companies only since 1980s. The first use of value engineering in Japan – known as 'genka kikaku' – occurred at Toyota in 1963 (Hiromoto, 1988). The genka kikaku begins with the *shusha* who is the manager in charge of the car production process from planning to sales. The whole process normally takes multiple continuous cycles, lasting approximately three years, only completed when the final design matches the lowest possible cost that can be attained (See figure below) (Hiromoto, 1988) and later the phrase 'genka kikaku' was translated into 'target costing' (Feil, Yook, Kim, 2004) as the new term used and generally accepted throughout the world. Even though the basic concept of target costing has existed in Japan for more than 40 years, its application has evolved slowly. In the early of 1990s, three major events occurred in Japan that contributed to significant changes in target costing. The first and most significant event was the bursting of the economic bubble in 1990 and 1991, which caused many companies to struggle to meet customer expectations of lower prices. However, to survive in the marketplace, many Japanese companies shifted from increasing market share to earning profits by reducing manufacturing costs through expanding the use of target costing. The second event was the rise of the Japanese yen against the U.S. dollar, which started in 1993. As a result of the yen rising 50 per cent (from 130-140 yen per dollar to a record 84 yen per dollar in 1992), both exports and profit margins of Japanese companies dropped dramatically. This caused Japanese companies to heavily use target costing to survive. The last event was Japan's long recession caused by a crisis in the financial sector in 1994, when Japanese companies had to reduce costs of their products to meet their profitability requirements. The improvement of target costing focused largely on information processing and information technology. The accuracy of cost information was significant in determining product prices. Computerised, scientific data processing and simulation systems, therefore, are becoming increasingly popular throughout Japanese industry.

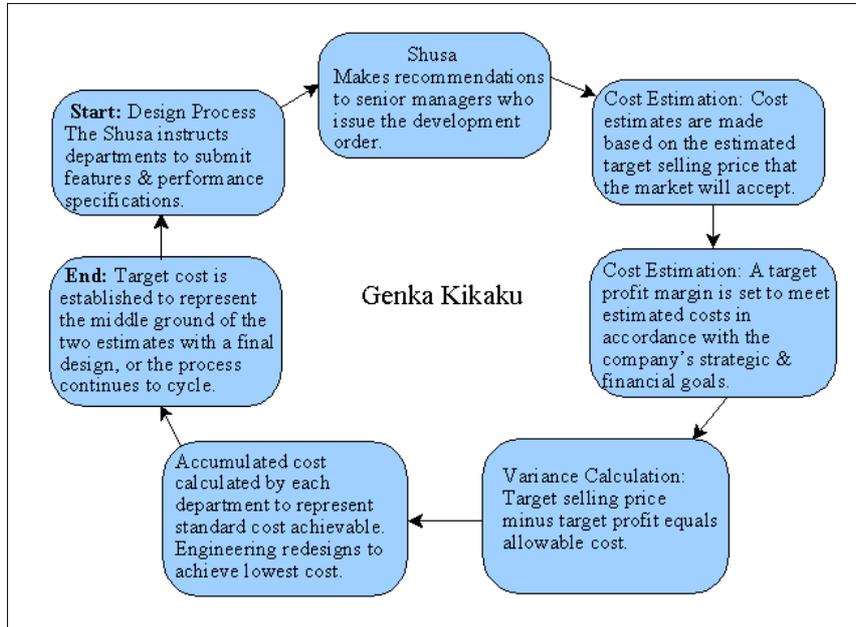


Figure 1 Genka Kikaku

Source: Hiromoto (1998), Another Hidden Edge: Japanese Management Accounting, *Harvard Business Review* (July- August): 22-25

THE DEFINITIONS OF TARGET COSTING

There is no single, simple definition of target costing. Originating in Japan, target costing has been used by a number of leading Japanese automotive, electronics and other companies and is beginning to be used by some North American companies as they penetrate very competitive markets. Recently Japanese authors such as Monden (1992), Sakurai (1989) and Tanaka (1993) have begun to describe how Japanese companies apply target costing. Some North American companies such as Ford, Chrysler and Cummins Engine are beginning to study Japanese firms and establish target costing initiatives. Due to highly competitive markets that most Japanese companies have been subjected to for a number of years, each company has taken its own unique approach and way of implementing target costing to suit its environment. Therefore, the definition of target costing varies and ranges from relatively narrow to broad.

There are a number of different concepts and definitions of target costing (Bhimani, 1995). For instance, Sakurai (1989) defines target costing "...as a cost management tool for reducing the overall cost of a product over its entire life cycle with the help of production, engineering, RandD, marketing and accounting departments." Monden (1995) states: "Target costing is defined as a company-wide profit management activity during the new product development stage that includes: (1) planning products that have customer-pleasing quality, (2) determining target costs (including target investment costs) for the new product to yield the target profit required over the medium to long term given the current market conditions, and (3) devising ways to make the product design achieve target costs while also satisfying customer needs for quality and prompt delivery." In his definition of target costing, Hiromoto (1988) states that its application goes beyond simple product design that makes better use of technology and work flow; target costing includes meeting the price required for market success, regardless of whether its price is supported by current manufacturing practices. In contrast to Hiromoto's market-oriented approach, Tanaka (1994) views target costing as oriented toward product function. Kato *et al.*, (1995) consider target costing to be an integrating mechanism that combines the various functional units of a company into a coherent system. As various target costing definitions were not developed under a whole, established theory, but rather piecemeal and from several practices in competitive markets, a broad meaning of target costing should be accepted.

THE DEVELOPMENT OF TARGET COSTING

In general, where there are a limited number of sellers and demand exceeds supply, the sellers can mark up their costs to set their prices. Traditionally, this is called a cost-plus approach to pricing. The equation can be written as follows:

$$\text{Cost} + \text{Profit Margin} = \text{Price}$$

As more markets become global and increasingly competitive, historical cost-based pricing may not suit the current market environment. If a company wants to achieve higher market penetration, it may choose to lower prices while increasing quality and/or offering quality and additional services. The target costing equation is then written as follows:

$$\text{Target cost} = \text{Selling price} - \text{Desired profit}$$

Target costing applies to new products and product modifications. The foundation of target costing – market-based prices, price-based costs and cross-functional participation – may also be used for existing products. Production costs are more difficult to reduce if a product is already in production.

However, as the concept of target costing spreads throughout the world, the ways of its adoption vary tremendously among nations. Kato (1993) found that 80 per cent of Japanese assembly companies had applied target costing. Chenhall and Langfield-Smith (1998) found that 38 per cent of Australian manufacturing companies used target costing practice, which is similar to New Zealand's 38.71 per cent (Rattray *et al.*, 2007). About 35 per cent of Indian manufacturing companies also adopted target costing (Joshi, 2001). While about 59.4 per cent of Dutch manufacturers adopted target costing (Dekker and Smidt, 2003), 90 per cent of Turkish companies have done so. Cooper and Slagmulder (1999) found that the use of target costing is not widespread among organizations in the U.S. economy. With the differing adoption rate among countries comes different target costing approaches. Japan's approach differs from that of Western nations. For instance, companies in the U.S. tend to put a lot of effort into reducing costs by redesigning and reengineering along with negotiating prices with suppliers; if the cost is still too high, the companies will redo the process until the manufacturing cost meets the target cost. In contrast, the Japanese set the target cost with the aid of an equation (Worthy, 1991): Planned selling price less desired profit equals Target cost.

Figure 2 distinguishes target costing approaches between firms in the U.S., as normally practiced in Western nations, and those in Japan. Both approaches start by conducting market research to understand customer needs. Both approaches require a strong market and customer orientation that defines product requirements by market and customer needs. Both approaches gain the product characteristics in terms of product features, quality and timeliness according to these needs. The U.S. approach will begin to design the product while the Japanese will devise the planned selling price, designed profit and then target cost of the product. It is here that these approaches start to differ. The U.S. approach will begin with design and engineering as well as suppliers to best produce a product that meets customer needs at a price that satisfies the customer. For both approaches, this process is a loop until the company receives a product that satisfies the customer in terms of quality and price. Then production can begin. The Japanese commonly apply a market driven approach of target pricing to a product at the early stages of design. Unlike the Americans, the Japanese lower product costs by implementing adequate product planning and then establishing a target cost before producing the products. Products then are designed and built with clear intentions to meet the correct price that market accepts.

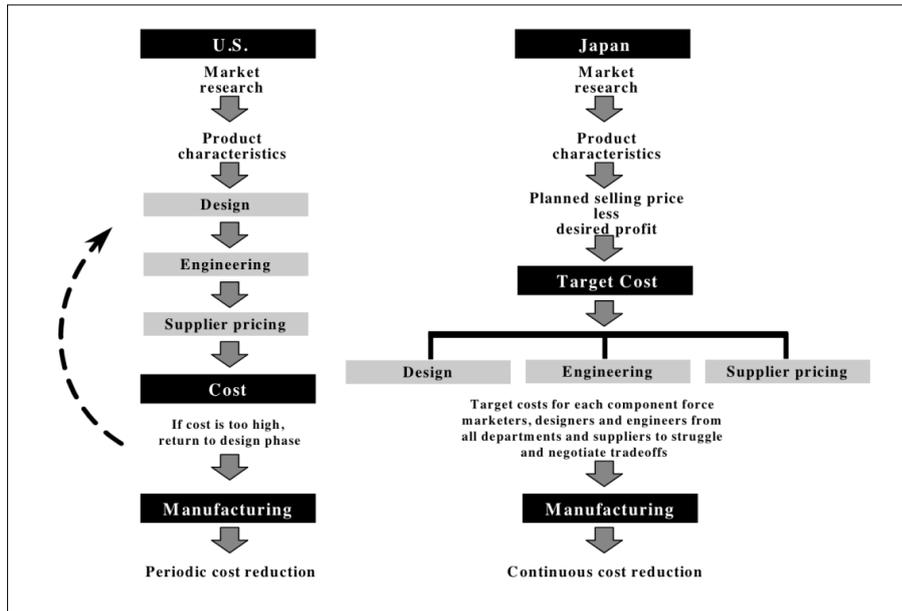


Figure 2 Western and Japanese cost management

Source: Worthy, F. (1991), Japan’s smart secret weapon. *Fortune* 124, 1991, 4, 72-75

The study of Moden (1995) states that the target costing process can be divided into five phases: 1) corporate planning for new products; 2) developing the specific new product concept; 3) determining the basic plan for a specific new product; 4) product designing, and 5) production transfer plan (Moden, 1995). In the final process, the new product’s estimated cost will be determined and compared with its target cost. The product will then be produced if the estimated cost is less than or equal to the target cost; otherwise, the process of revising will be repeated until the requirement is met.

The methods used in implementing target costing also differ among firms. The study of Ellram (2006) concludes in the case-study research of 11 U.S. organizations engaged in the target costing process that supply management has the most accountability for target costing execution and outcomes, with engineering and R&D as second and third, respectively. Interestingly, in the case studies, accounting and finance were the least involved in target costing accountability. The conclusions also present that supplier negotiations based on factual data, changing specifications and acceptance of higher start-up costs with a firm cost reduction commitment in the later stages are the most popular methods used to achieve target costing.

3. Research methodology

The research was conducted through two approaches: focus group and questionnaire survey to a sample of manufacturing firms in Thailand. The focus group was arranged first to acquire ideas, important information, possible problems and potential solutions. The focus group was organised and held at Rangsit University, Thailand, by inviting academic scholars and relevant managements to address their points of view about target costing. In the second approach, questionnaires were addressed to firms’ chief financial officers with a cover letter asking recipients to forward it to the most informed person, as prior studies have indicated that the accounting department may not be largely involved in target costing. The questionnaire’s focus includes the critical success factors essential for successful implementation of target costing.

The questionnaire survey was developed and focused on the adoption of target costing and cost management techniques similar to target costing. It is possible that companies may be unfamiliar with the target costing concept, even though they may be using the technique without realising it. Therefore, to assess whether companies use target costing, a broad description of its general idea was provided. The definition of target costing will focus on reverse costing, a crucial feature of target costing.

4. Research Results

The research investigated the adoption of target cost of manufacturing firms in Thailand. From the results of the focus group and interview (eight experienced practitioners from four publicly listed companies), one can conclude that most executive managers consider target costing as a tool to manage a firm's profit. Target costing is used as a planning tool in which aspects of the product, cost and otherwise, are considered over its whole life cycle. It may also involve many departments such as engineering, production and accounting, and it is a cross-functional process. Product types that target costing can be used for are not limited or focused specifically on some product line. In the Thai market, many companies that produce consumer products such as electric fans, lamps, modern furniture and processed food have practiced target costing in various ways, such as for new-launch and low-cost products. A participant also argued that target costing is more likely to be used in products whose price is positioned for a lower market to be more competitively advantageous. In product lines whose price and quality of materials are strictly circumscribed by management, target costing application may be limited by manufacturers. Furthermore, for lead products whose price is identified by the manufacturing firms, or whose quality is well-accepted in a market where price is not an issue, implementation of target costing can be less critical.

The mailed-questionnaire survey was distributed to a sample of 880 manufacturing firms, and a preliminary 131 responses were received: a response rate of 14.89 per cent. The 90.8 per cent of respondents consisted of petrochemicals and chemicals (39.7 per cent), paper and printing materials (29.0 per cent), industrial materials and machinery (22.1 per cent) and other sectors such as steel, packaging, and automotive (9.2 per cent)

Table 1 Average income and number of employees of the sampled firms

	Maximum	Minimum	Average
Average annual income in years 2008-2011	USD 6,333 million	USD 17.8 million	USD 132.00 million
Number of employees in 2010	4,600	300	384
Number of employees in 2011	30,000	527	641

Exchange rate: 1 USD: 30 baht

From Table 1, the average income of respondents was USD 132 million, with the average number of employees at 384 and 641 in 2010 and 2011, respectively. The research results also reveal that the respondents had used target costing for more than two years and most of them, 79.1 per cent, had used target costing for 2-10 years; 15.5 per cent had used it for 11-20 years; and 5.5 per cent had used it for more than 20 years. A few expected to implement target costing throughout their business life, with the longest implementation lasting 45 years. It is found that most respondents, about 88.3 per cent, used target costing for developing and planning production (on process-oriented and assembly-oriented manufacturing methods), while 39.5 per cent of respondents also implemented target costing for new-launch products or for redesigning existing products. Objectives of implementing target costing mainly were for targeted profit, targeted selling price and for cost management, respectively. Target costing is implemented on a company-wide level according to 63.8 per cent of respondents, while at an entire plant level among 23.6 per cent of respondents. As most respondents evaluate performance at the department level, the existing target cost for developing and planning for new products or for redeveloping existing products is generally decided upon at the department level.

Furthermore, when we consider behavior that arises from implementing target costing, it is found that company staff who practice target costing may feel a little uneasy or uncomfortable to neutral about the emphasis on cost reduction; this could cause conflict among departments and/or design engineers in firms with strict targets: staff felt pressure to perform and believed that their firms had placed too much emphasis on customer orientation.

The respondents also completed a five-point scale of performance outcome in regard to implementing target costing in the firms as summarised in Table 2.

Table 2 Performance results from implementing target costing

No.	Performance results	Average*	Result
1.	Realization of product concept	4.24	High
2.	Quality improvement	4.06	High
3.	Product cost reduction	3.81	High
4.	Reducing development lead time	3.56	High
5.	Product features based on customer needs	4.22	High
6.	Timely introduction of new product	3.25	Medium
7.	Waste reduction on the factory floor	3.65	High
8.	Active involvement of all departments	3.90	High
9.	Improving design/development technology	3.63	High
10.	Design-to-cost	3.67	High
11.	Strengthening design/development process	3.66	High
12.	Cost reduction efforts by engineers	3.59	High
13.	Reduction of raw materials purchased	3.38	Medium
14.	Reducing design changes after the start of production	3.21	Medium
15.	Upstream cost reduction	3.40	Medium

*Score 5 represents most satisfied and 1 least satisfied

It is found that majority of the respondents identified that product quality improved in terms of design, technology and development process at a level of four out of five, as well as reductions in product costs, upstream costs, lead time and waste. It can be summarised that firms had achieved high satisfaction in implementing target costing: its application could provide considerable advantages to its practitioners.

In this study, we also attempted to discover the key success factors for implementing target costing. We found that support from top management was the most critical key factor in enabling successful implementation, which registered 4.57 out of five on the scale of importance. Many participants viewed the cross-functional transfer of employees and job rotation as largely irrelevant to the successful implementation of target costing (see Table 3).

Table 3 Success factors for implementing target costing

No.	Success Factors	Average*	Results
1.	Top management support	4.57	Very High
2.	Empowered project manager	4.05	High
3.	Tools and information systems	4.01	High
4.	Cost estimation capability	3.99	High
5.	Cooperation with other departments	3.98	High
6.	Technology in production/quality	3.87	High
7.	Information sharing	3.83	High
8.	Linkage to profit planning	3.83	High
9.	Cross-functional team (org. structure)	3.80	High
10.	Cooperation of suppliers	3.76	High
11.	Autonomy of employees	3.75	High
12.	Knowledge about cost	3.75	High
13.	New technology/materials from RandD	3.73	Medium
14.	Functional knowledge of team members	3.71	Medium
15.	Delegation of power/responsibility	3.69	Medium
16.	Concurrent engineering	3.62	Medium
17.	Cross-functional transfer of employees	3.28	Medium
18.	Job rotation	3.25	Medium

*Score 5 represents most important and 1 least important

5. Conclusions and suggestions

The fundamental objective of target costing is to enable management to run its business as a profitable enterprise in a very competitive market. Target costing is a different way of considering the relationship between a product's price and its cost. The basic target costing equation of 'Selling Price – Designed Profit = Target costing' means that prices are driven and set either by competitive market forces or by the company as it aggressively lowers its prices to increase market penetration. The designed profits are established such that the company can make money and that allowable costs are derived from price and margin. The result of this research illustrates to us that target costing has been practiced in the Thai market for many years. Industrial sectors that normally implementing target costing are those concerned with gaining a competitive price advantage; therefore, target costing is used as one tool to achieve a targeted profit. Firms that are the leaders in a particular field with outstanding quality or at a top positioning level, where pricing may not be crucial, may see cost reduction and target costing as less important. However, generally the vital benefits of target costing in firms that practice it assist them in making trade-offs between cost and quality. It also assists firms in launching new products with lower, acceptable and competitive prices. In effect, target costing is a proactive cost planning, cost management, and cost reduction practice whereby costs are planned and managed early in the design and development cycle rather than during the latter stages of product development and production when costs are more difficult to reduce once a product is in production.

The most critical success factor in implementing target costing from the study is management support. Target costing cannot be undertaken without the full support of management and the support and involvement of the other areas of the business including marketing, product development, procurement, manufacturing and accounting. This study demonstrates that the top three elements for success in implementing target costing are top management support, an empowered project manager, and tools and information systems that must be supported by the accounting department. Managerial accountants are key persons in gathering, analyzing, measuring and reporting information to top management.

Although the research study is based in Thailand with a limited sample size, the survey findings and hands-on experience of the relevant industrial practitioners may be cross-referenced to similar sectors. We are convinced that the research provides useful insights into assisting key stakeholders in determining important successful ingredients when applying target costing strategy to new products or to the redevelopment of existing products. Such an identification of critical success factors would be valuable in formulating effective practical strategies to improve performance. Many stakeholders also attempt to seek more research evidence to capture levels of success in implementing target costing and in generating best practices for other relevant stakeholders. Implementing target costing takes time. It requires widespread understanding, the support of senior management, and the involvement of all parts of an organisation. However, for the survival of a business in a highly competitive market, it could be concluded that target costing is a vital key to the long-term business survival, growth and prosperity in a competitive and rapidly changing environment.

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