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Revista de Antropología, Ciencias de la Comunicación y de la Información, Filosofía,
Linguística y Semiótica, Problemas del Desarrollo, la Ciencia y la Tecnología

Año 35, 2019, Especial N° 20

Revista de Ciencias Humanas y Sociales
ISSN 1012-1587/ ISSNe: 2477-9385
Depósito Legal pp 198402ZU45



Universidad del Zulia
Facultad Experimental de Ciencias
Departamento de Ciencias Humanas
Maracaibo - Venezuela

The Integration between the Target Cost and Product Lifecycle in Achieving Advantage

Nuha Safi Abd¹

¹Northern Technical University - Technical Institute Al-Dour.
nuhaacc@ac.ur

Asmaa Noaman Jasim²

²Tikrit University - College of Administration and Economics.
asmaajasem606@ac.ur

Abstract

The research aims to measure the cost of production of the grains of Aspin for children in the grain production department of the state company for drugs industry and medical appliances via the descriptive approach through the case study method. The search has yielded many results. The most prominent of these results, cost management tools (Target Cost) support the product lifecycle, and the product lifecycle supports target cost. In conclusion, developments in modern accounting methods have had a significant impact on achieving the competitive advantage of companies, resulting in the need for cost management tools.

Keywords: Target, cost, product, lifecycle, competitive.

La integración entre el costo objetivo y el ciclo de vida del producto para lograr ventajas

Resumen

El objetivo de la investigación es medir el costo de producción de los granos de Aspin para niños en el departamento de producción de granos de la empresa estatal para la industria de medicamentos y dispositivos médicos a través del enfoque descriptivo mediante el método de estudio de caso. La búsqueda ha dado muchos resultados. El más destacado de estos resultados, las herramientas de administración de costos (costo objetivo) son compatibles con el ciclo de vida del producto, y el ciclo de vida del producto es compatible con el costo objetivo. En conclusión, la evolución de los métodos contables modernos ha tenido un impacto significativo en el logro de la ventaja competitiva de las empresas, lo que ha generado la necesidad de herramientas de gestión de costos.

Palabras clave: Target, costo, producto, ciclo de vida, competitivo.

1. INTRODUCTION

Iraqi industry faces many challenges and changes in the contemporary business environment, where this industry still uses traditional methods and techniques to manage the cost of its products, and face difficult conditions for their competitiveness, in conjunction with multiple stages of life cycle costs of the product. Importance of research: SDI company's products have suffered a clear decline in the markets because of the economic openness in Iraq after 2003, when

foreign goods and products have been flowing in a large way, which requires the use of technologies commensurate with this challenge of intense competition through the adoption of modern methods. In calculating costs, setting prices, and profit margins, as well as avoiding traditional methods of pricing, profit margins and costs. The intention is that the production should be within the allowable costs, after comparing these costs with the estimated costs at the design stage of the product lifecycle, to meet the customer's wishes and needs.

The research aims to study both the cost lifecycle of the product and the target costs, while recognizing the aspects of complementarity between these two methods and the importance of this integration and its reflection in achieving competitive advantage, through the application to the Iraqi industrial environment, represented in The State Company for Drugs Industry and Medical Appliances (SDI company) – Samarra / Iraq. The research proceeds from the hypothesis that the integration of the two methods of the product lifecycle and target costs makes them more effective in achieving a competitive advantage, compared to whether they are applied individually.

2. THEORETICAL FRAMEWORK

The concept of Target Cost

1. Definition of Target cost: Many studies were concerned with the concept of target cost. Some of these studies believe that the target cost is a cost management method that aims to reduce product cost through design, planning and development stages. Others see the target cost as a method to reach the price of the product.

The target cost was defined by more than one definition. Almtarna (2008) defines the target cost as a cost-management method through the planning, development, and design of the product to help managers find ways to reduce the cost of the product over the product lifecycle to increase profitability while focusing on product design that satisfies consumers.

Thawadi (2009) defines the target cost as an integrated method or schema aimed at cost reduction that begins before the initial design of the product, that is, the method of cost target is aimed at reducing cost during the life cycle of the new products while meeting consumer requirements in terms of quality and use, etc. by studying possible ideas to reduce costs during the planning, development, and production of models.

Through the previous presentation of the concept of cost target, the two researchers argue that target cost is one of the cost-management methods to reduce the cost of the product through its life cycle during the stages of planning, development, and design, as well

as the method of target cost focuses on quality assurance, cost reduction and the introduction of new products to the market.

2. Objectives of applying the target cost: The application of the method of target cost has several objectives, including: (Zarub, 2013).

a. The target cost aims to reduce the cost of the product.

b. Improve the competitiveness of the company, by providing the benefits of belonging employees to the company and increasing the efforts of these employees towards achieving the objectives of reducing the cost of the product.

c. Increase and improve product quality, and create an advantage for the product, by introducing it in time and then reducing the target time.

d. The target cost is focused on the external environment of the company, where the wishes and needs of the consumer and the specifications and characteristics of the product contribute to determining the competitive advantage of the company.

e. Contribute to managing multiple products.

3. Principles of Target Cost: The success of applying the method of target cost depends on several principles. These principles are: (Ansari and Bell, 2006).

a. Price of selling: The market price is used for the purpose of determining cost and target cost.

b. Focus on customers and consumers: Customers must be taken care of in terms of product cost and quality and the time to get the product.

c. Focus on Product Design: There must be strict control over costs of the product and its design stages, and product designers must also have a product design that can be produced within target cost limits.

d. The method of target cost should include suppliers, distributors, and consumers (Value Series Team).

e. Reducing Product Lifecycle Costs: When determining the target cost, all costs associated with the product life cycle must be taken into account, and work to reduce these costs, whether the costs of distribution, purchase, maintenance, as well as costs of disposal of the product.

4. Methods of calculating the target cost: The methods of calculating the target cost vary according to the company's strategy, the objective of the measurement, and the quality of the product.

The most important methods used to calculate the target cost are the following: (Bensaeed, 2015).

a. Method of addition (collecting): Under this method, the target cost is estimated for each part, component or activity separately. The partial costs of the product are then collected according to the functions that these costs are expected to perform, based on the current cost level and then attempting to exploit every possible means to reduce costs.

b. Method of discount (subtraction): In this Method, the target cost is determined based on the target profit rate and target selling price as:

$\text{Target Cost} = \text{Target Selling Price} - \text{Target Profit}$

c. Method of cost reduction rate: When applying this method, the target cost is estimated by setting a specific rate to reduce the current cost, in a way that reflects the evolution rates of the company's performance, as:

$$\text{Target cost} = \text{current cost} (1 - \text{reduction rate})$$

The concept of competitive advantage

1. Definition of competitive advantage:

Competitive advantage is the core of the company's strategic thinking, as it is a combination of the physical and intangible things the company has or acquired through the purchase process, in line with its orientation and objectives.

Bensaeed (2013) believes that competitive advantage is the value that the company can add to its customers by lowering the price of its products for the rest of the competitors' goods and services, or by providing additional and complementary benefits to the products to compensate for the increase in prices (Yang et al., 2019; Soo et al., 2019; Queirós et al., 2017).

Saleh (2014) defines competitive advantage as the ability of the company to formulate and implement strategies that make it better in comparison to other companies.

All definitions of competitive advantage emphasize the importance of distinguishing the company by a unique element on its competitors. Therefore, competitive advantage is defined as all the characteristics of the company that distinguish it from other competitors and lead to satisfaction of the wishes of current or prospective customers and reflect in their impact the increase in market share and profitability. This advantage can be achieved if the company follows any strategy of general competitiveness (cost, Quality, flexibility, time, creativity) (Samarrai & Zamili, 2017; Abdushukurov, 2016).

From the foregoing, it can be said that achieving the competitive advantage of any company requires the discovery of new and innovative ways to be more effective than those used by competitors.

2. Objectives of competitive advantage:

By creating a competitive advantage, the company aims to achieve the following objectives: (Saleh, 2014).

a. Create a good future vision for the goals that the company aims to achieve and seize great opportunities.

b. Enter into a new competitive field, such as dealing with new customers, entering a new market, new quality of products and services, or creating new marketing opportunities.

3. Dimensions of competitive advantage (Saleh, 2014; Bensaeed, 2013).

Integration of stages of product lifecycle and target cost to support the competitive advantage of industrial companies

Modern methods of cost management have become the new accounting management tool to effectively control the company's activities to reduce cost. The most important of these methods, which may combine integration to support the competitive advantage of the company, is the product lifecycle method and target cost method to reduce the cost in order for the company to gain competitive advantage. The management of the company must take into account that these two methods (method of the product lifecycle, method of the target cost) are not as separate methods, but as parts of an integrated system. Research and studies have shown that achieving a competitive advantage is not achieved by relying on one approach as a separate part. The management of the company must accept cost-management comprehensiveness in order to sustain its ability to survive and continue to provide products with a distinctive variety and competitive prices (Abdullah and Mansour, 2015; Gerami & Kordlouie, 2016).

Many companies have found that the bulk of the product lifecycle costs are at the planning and design stage, and in the manufacturing phase, the costs are actually realized. Therefore, cost management in companies is more effectively realized in the planning and design phase than in the manufacturing stage.

Similarly, if the company is trying to reduce the cost of manufacturing a product, there may be many components that can be replaced satisfactorily, cheaper and simpler, without harming the values of use or appreciation. However, there will be some ingredients that are vital to value use and others that give the product value of an estimate (conservation quality and medicinal substance).

Figure 2 shows what the two researchers agreed to rationalize cost reduction through proposed integration.

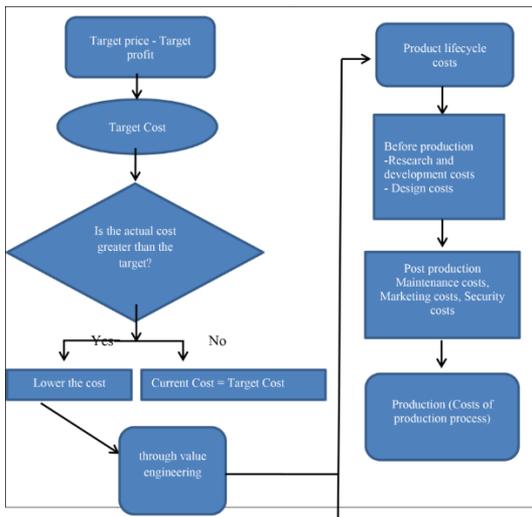


Figure 2: Model of cost reduction through proposed integration

Source: prepared by the two researchers

3. APPLIED FRAMEWORK

Overview of SDI Company

SDI Company is established under the Public Institutions Law No. 66 of 1965 and its main location in Samarra / Iraq. The company's main objective is to produce various human medicines that meet the needs of the country according to the high specifications and production of different medical devices according to international standards. SDI company depends on several decisions, the most important of these decisions to be the selling prices are (manufacturing cost + profit margin), and this margin is determined by the management of the company. The profit margin can be adjusted by increasing or decreasing after informing the Board of Directors of the total cost of the products and the current sale price of these products.

Application of target cost procedures through the product lifecycle

The implementation of the target cost procedures of SDI Company goes through several stages, including the following:

1. Develop a product that meets the needs of customers, so the company must search for a product that can be manufactured to meet the needs of customers.

2. Choose your target price. SDI Company determines the price to sell the selected unit (Aspin for children), bearing in mind that the target price is appropriate for the target customer category, and the competitor of the prices of the goods put on the market by the competing companies.

3. Determine the target profit. The profit target for the new products of SDI Company is related to its strategic planning.

4. Determine the target cost. The target cost is the product manufacturing costs that include reaching the target price, as well as achieving the desired profit.

5. Design parts and components of the product to achieve the target costs. Which requires the company to prepare the necessary studies conducted by the value engineering team consisting of production engineers and designers and marketing manager who provide suggestions to improve the cost.

Table (1) below shows cost and price information through which the company plans a new product on a virtual basis, based on the prices and costs of the pills division's products in the SDI Company.

After the initial conception of the product has been established through actual production costs, the price of the product is assumed to be close to the prices of similar products. The product enters the market at the price of (69 Iraqi Dinars). The price of the product box with the instructions amounted to (15 Iraqi dinars), and since the two

functions have been merged to the product packaging, the company can put a price higher than (84 Iraqi dinars).

Thus, the company planned to target the price of 100 Iraqi dinars, by a decision of its management. Here comes the next step, which is the target profit in order to calculate the target cost allowed for the product, which was determined based on the rate of return (10%). Thus, the target cost of the product = (target cost = target price - target profit) so the target cost = (100 – 10 = 90 IQD) (IQD = Iraqi dinar). We then determine the current (estimated) cost of the product life cycle. The target cost is divided into the life cycle of the product to see where the greatest cost occurs and to prepare for the elimination of this cost, using value engineering as mentioned above (Indriastuti, 2019).

		Product (IQD)		
		Aspin	Aspin E.C 100	Aspin E.C 81
1	Chemical inputs	9.768	19.976	12.579
2	Packing materials	14.259	3.144	2.358
3	Costs of Box	15.000	15.000	15.000
4	Total packaging costs	29.259	18.144	17.358
5	Other direct costs	5.194	5.194	5.194
6	Labor wages	19.195	19.195	19.195
7	Direct cost	63.42	62.51	54.33
8	Industrial expenses	25.366	25.004	21.730

9	Administrative and marketing expenses	19.025	18.753	16.298
10	Total cost (without box and 15%)	92.807	91.265	77.354
11	Total cost with box	107.81	106.27	92.35
12	Total cost after 15% (with box)	123.98	122.21	106.21
13	The current selling price of the private sector	140	130	140
14	Selling price after discount	108	100	108
15	Profit margin % (without box and without 15%)	14 %	9 %	28 %
16	Profit margin % (box only)	0 %	- 6 %	14 %
17	Profit margin % (with 15%)	- 15 %	- 22 %	1 %

Table 1: Cost and prices of the three products of SDI Company

Source: Cost and price records from SDI Company.

Based on the information available from SDI company's management about the previous products, research and development costs amounted to (34 IQD) from the current cost of (114 IQD). The percentage is calculated as $34/114 \times 100 = 34\%$. Thus, the target cost is: $(90 \times 34\% = 30.6 \text{ IQD})$, and there is a simple cost of the cost gap of (3.4 IQD), as shown in table (2). Table (2) also shows that the biggest gap in the production phase was (13.1 IQD). In order to reduce and eliminate cost differentials, the company should use the value engineering method, which is one of the methods that reduces production costs by revising the initial design of the pills of Aspin for children and the materials required for it, and try to cancel the stages

of manufacturing that do not add value to the product. Which reduces the cost to production, to be equal to or close to the target costs, allowing the company to achieve a higher competitive advantage than other competitors.

Stages of the product lifecycle	Target Cost (IQD per unit)	Current Cost (IQD per unit)	Gap
research and development	30.6	34	3.4
Production	36.9	50	14.1
Sales and marketing	18	23	5
After production (end)	4.5	7	2.5
Total	90	114	24

Table 2: Costs of Product lifecycle stages (Aspin pills for children)

Source: Cost and price records from SDI Company

4. CONCLUSIONS

The most important conclusion of this research, first developments in modern accounting methods have had a significant impact on achieving the competitive advantage of companies, resulting in the need for cost management tools. Second, cost management tools (target cost) support the product lifecycle, and the product lifecycle supports the target cost, and this integration will increase the competitive advantage of the company. Third, the integration of target cost and product lifecycle helps to create a robust management system

that increases planning, production, and cost reduction without sacrificing quality, thus contributing to the competitive advantage of the company and enabling it to survive, grow and continuation.

Wherefore, companies need to link modern cost management tools with a competitive advantage in order to survive and continuation. Therefore, there is a need for SDI Company to adopt modern methods in the measurement of cost, including the integration of the method of cost target and method of the product lifecycle, in order to achieve the competitive advantage of the company over the competing companies. Moreover, it is necessary to work on the use of value engineering method to remove the cost gap through the development of production methods, in addition to reducing cost and reach the target cost and then achieve the competitive advantage of the SDI Company.

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Revista de Ciencias Humanas y Sociales

Año 35, N° 20, (2019)

Esta revista fue editada en formato digital por el personal de la Oficina de Publicaciones Científicas de la Facultad Experimental de Ciencias, Universidad del Zulia.

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