



Target Costing Pricing System: Adoption Mechanisms and Success Factors - A Case Study of Toyota Japanese Automotive Industry-

AZZI Ferial Manel *¹

¹ Abdelhafid Boussouf University Center Mila (Algeria) , f.azzi@centre-univ-mila.dz.

Received :15/09/2024

Accepted :22/10/2024

Published :01/01/2025

Abstract:

The study aimed to elucidate the methodologies and foundational principles essential for the successful implementation of the target costing framework., with a focus on Toyota's case. It explored how this system impacts organizational performance and found that Toyota's success was significantly enhanced by target costing, contributing to its strong market position. The study concluded that target costing is most effective in large corporations and dynamic sectors, such as automotive and electronics, which require constant innovation and adaptation. However, it may not produce similar benefits in retail and smaller sectors where technological capabilities are less critical.

Keywords: *Target costing; Mechanisms; Factors; Automotive industry; Toyota.*

Jel Classification Codes : L15; C70; D24; L62; L62.

* Corresponding author

Introduction:

The rapid advancements of the past century have brought successive transformations to global industrial enterprises, particularly in production systems. Modern and sophisticated manufacturing techniques have been established alongside revolutions in information technology and various communication systems. Intensified competition compels companies to innovate their management approaches in sync with these rapid changes, lest they face the risk of discontinuity and potential extinction, like what happened with Nokia, once a pioneering leader in the mobile phone industry. Nokia's adherence to outdated operational norms and failure to adapt designs to contemporary business environments, coupled with a lack of strategic foresight to keep pace with competitive advancements, led to its loss of market leadership and eventual divestiture to Microsoft.

The concept of Target Costing emerged clandestinely in Japan during the 1960s, gaining prominence notably in the 1980s. Japanese industrial firms achieved significant global progress through its adoption. Subsequently, Western countries such as the United States and the European Union also embraced Target Costing to manage product costs effectively, thereby enhancing their competitive advantage. As a result, variations in the adoption of this system became evident across different nations.

Target Costing has prominently emerged in automotive and electronic industries, demonstrating effectiveness in these transformative sectors. Toyota exemplifies the successful implementation of Target Costing, standing as one of Japan's largest and most successful companies in both overall management and product cost optimization. Toyota aims to minimize costs, maximize efficiency, and ensure superior quality by factoring in competitive elements and customer preferences during the early stages of product design. This strategic approach has consistently enabled Toyota to maintain leadership positions in both Japanese and global markets.

Study Problem:

The target costing pricing system has been adopted by Japanese automotive companies since 1960, where they have achieved rapid development and remarkable success in managing their costs, thereby realizing the ambitions and tactics of their manufacturing plants. Consequently, this research addresses the pivotal inquiry: "What elements and procedures has Toyota embraced in its target costing pricing methodology?" Furthermore, how do these elements influence the effectiveness of its managerial strategies.

Hypotheses:

To address the research problem and achieve its objectives, hypotheses have been formulated as follows:

- **First Hypothesis:** Proper adoption of the target costing system contributes to enhancing company performance and achieving cost management objectives.
- **Second Hypothesis:** Toyota's adoption of the target costing system has contributed to strengthening its market position, refining manufacturing expenses, and amplifying earnings.

Study Objectives:

The primary objectives of this study are:

- To provide an in-depth analysis of the target costing system, encompassing its critical steps and key phases of adoption.
- To identify the crucial factors that contribute to the successful implementation of the target costing system and to determine the types of companies or institutions that are best suited for this pricing model.
- To analyze the key steps followed by Toyota as a successful model in adopting the target costing system for managing its costs, products, and achieving optimal strategic planning.

Study Methodology:

In order to address the main research problem effectively, this study utilized both descriptive-analytical and case study methodologies. The descriptive-analytical approach was employed to comprehensively describe the target costing system and analyze its critical success factors and implementation steps. Furthermore, the case study method was applied to conduct an in-depth empirical investigation of Toyota's implementation of cost management practices, serving as a validated successful model over the past decade.

Previous Studies:

There is a set of studies that have addressed the topic of target costing and its importance in many countries around the world, which have varied and differed according to time, proposed framework, study variables, and different aspects. Some of these studies are as follows:

- **Sanusi Adebisi and Lawrence (2014)**, Studied the impact of the target costing system on organizational performance; adopted and implemented in manufacturing companies in South Western Nigeria. From the survey of a sample of 282 industrial firms that are listed with the Nigerian Stock Exchange, the authors established a weak uptake of the target costing system. However, the structure of identified problems pointed at the possible positive outcome of this system concerning return on investment and cutting expenses. (Lawrence and Adebisi, 2014).
- **Qasim Mohsen Al-Habiti (2009)**. The study explores the feasibility of implementing the target costing approach in relation to enterprises and commercial companies. To assess the usefulness of the target costing system, the researcher equally applied the stages of the target costing system on Al-Mahari Company. And concluded the possibility of its adoption by the company, but recommended using the activity-based costing approach as a successful method in commercial companies instead of the target costing system. (Al-Habiti, 2009)
- **A study by Ghassan Falah Al-Matarna (2008)**. This research looks at the possibility of using target costing in organizations in Jordanian industry while examining the possibilities and challenges of its adoption. The target sample of the present research consisted of 31 industrial joint-stock companies of Jordan. Interestingly, the results of this paper showed that although these companies meet the target adoption criteria, they do not use the target costing approach. Further, there are various challenges which were discovered by this study to affect this costing method to be implemented. (Al-Matarna, 2008)

The current study differs from previous studies in the theoretical aspect, where we focused on the fundamental and necessary factors to ensure the success of this pricing method. The essential difference in our applied study is that we dedicated it to examining the experience of Toyota as one of the most prominent and strongest global companies in the automotive industry. Considering this company as an ideal model for cost management through target costing in Japan as an essential system in managing costs, Unlike previous studies that examined the potential adoption of this approach in other countries, This study seeks to uncover success

criteria in the actual implementation of the target costing system. It also looks at the viability of establishing it as a model for similar industries.

Study Structure:

The first section focused on the theoretical framework of the target costing system. The second section was devoted to examining the factors and steps crucial for the successful implementation of this system. Lastly, the final section presented and analyzed Toyota's experience in product management.

1. OVERVIEW AND DEVELOPMENT OF THE TARGET COSTING SYSTEM:

The topic deals with the target costing system and gives emphasis on the subject area, definition and characteristics of the system.

1.1 ORIGINS AND DEVELOPMENT OF THE TARGET COSTING SYSTEM:

The origin of the target costing system can be traced back to the way it helped in setting product costs, which was one component that characterised the target costing system. This idea starting materializing in the first half of the 20th century at Ford in United States. During the 1930s, there was a systematic attempt to try and come up with other ways of attaining the target price of 900 DM for Volkswagen Beetle which was already in production in Germany. This included an undertaking of cost analysis with regards to the various costs that would be incurred in the production process.

Yet, the target costing approach blossomed magnificently and underwent remarkable transformation throughout the era of economic resurgence after World War II, where American businessmen invented the concept of increasing product quality and features to the maximum possible extent while reducing costs at the same time; this technique was called "Value Engineering" and was later adopted by Japanese companies in the 1960s, amid rising global competition, the value engineering approach was incorporated into efforts to reduce product costs early in the production process, specifically during the planning and development stages. The initial application of the value engineering technique marked a significant development in this context, or what is known as Genka Kiaku in Japan, was by Toyota in 1963. However, it was not mentioned in Japanese writings until 1978. The term derived from the Japanese language, Genka Kiaku, was translated into the term used today worldwide, which is "Target Costing."

In the year 1995, at the gathering of the Japanese Cost Association, the term "Target Cost Management" was embraced as the official designation for the innovative Japanese idea, based on the fact that the term "target cost" did not truly convey the meaning of the term "Genka Kiaku" (Feil and others, 2004, P10). Target costing has become the foundation for most major Japanese companies, as a survey conducted in Japan between 1991 and 1992, cited by Y. Kato in 1995, revealed that after 20 years of adopting this method, it became the foundation for almost 80% of automobile manufacturing companies in Japan, and approximately 80% of companies in the electrical equipment, electronics, and construction materials sectors, as well as around 30% in the chemical and pharmaceutical industry, and a lower percentage in the textile and paper industry, Some other sectors have not adopted it. (Meysonnier, 2001,P115).

1.2 CONCEPT OF TARGET COSTING SYSTEM

The Chartered Institute of Management Accountants **CIMA** articulates target costing as: "A calculated projection of the product's expense established in accordance with the anticipated

profit margin to be achieved from the competitive market price." Additionally, it describes target costing as "a technique developed in the early 1970s in the assembly industries in Japan to cope with consumer demand , which in turn affected the company's product differentiation and multiplication, underlining the concept of the product life cycle and the stages of new product evolution and planning. "

Sakurai (1989) defines it as " a cost management strategy designed to minimize the overall expense of a product over its entire lifecycle. This approach involves coordinated efforts among various departments, including production, engineering, research and development, marketing, and accounting. "

According to **Coopers and Shew (1996)**, target costing is " "a method that emphasizes the ongoing capability to confront market demands by innovating throughout the production and product design process". (CIMA, 2005, P4)

Through the previous definitions, we can define the target cost as an essential component of the product development process, extending from the design phase to post-sales activities. This involves analyzing the market, competitors, and customer preferences to establish a competitive price and profit margin, which then informs the cost structure. Subsequently, the product or service is adjusted to align with the determined prices and specifications.

1.3 FEATURES OF THE TARGET COSTING SYSTEM:

From this, we can identify several distinctive characteristics of the target costing approach:

- It is an open system that emphasizes interaction between the organization and its external environment.
- It is used as a control tool, applied before production starts for planning and design purposes.
- Particularly relevant for products with short life cycles, relying on market prices to set target costs.
- Aims to increase and manage profits effectively while focusing on cost planning and management without compromising quality or time.
- Utilizes methods such as value engineering, value chain analysis, and design planning to reduce costs while maintaining product quality.
- Analyzes all activities that generate added value to identify cost-effective actions and responsibilities (Al-Habiti, 2009, p. 322).
- Creates a competitive advantage through market research and supports long-term planning by setting and achieving target costs with continuous improvement.
- Supports cost reduction at all stages of the product life cycle, encouraging innovation and creativity among employees, administrators, designers, and engineers.
- Requires full coordination and cooperation between various departments within the organization.
- Enhances relationships with suppliers through collaboration and knowledge exchange, and studies customer demands and preferences.
- Involves continuous consideration of product costs and related activities throughout both the design and production stages.
- - Incorporates cost control measures and feedback systems as the product moves into the manufacturing phase.
- Demands teamwork, alignment with the institution's strategy, and a commitment to continuous improvement.
- Relies on a multidisciplinary team to find alternative cost reduction strategies (Dimi & Simon, 2014, p. 46-47).

2. MECHANISMS AND PREREQUISITES FOR EMBRACING AND EXECUTING THE TARGET COSTING FRAMEWORK:

The implementation of a target costing system necessitates several critical factors to ensure success. The process involves several fundamental stages, which will be detailed in this topic.

2.1 BASIC PRINCIPLES TO ENSURE THE SUCCESS OF THE TARGET COSTING APPROACH:

The effective adoption of the target costing approach relies on a set of core principles and elements to achieve the desired objectives. These essential components include:

Firstly: Price Led Costing: To determine the target cost, it is crucial to first establish the selling price of the product. The target cost is derived by subtracting the desired profit from this selling price, ensuring that this cost limit is adhered to throughout the manufacturing process.

Secondly: Customer Focus: Management should prioritize understanding the customer's needs, preferences, and willingness to pay. This includes analyzing customer feedback and market reactions to ensure that the product or service meets their expectations and is priced appropriately.

Thirdly : Emphasis on Product Design: The role of design engineering is vital in the target costing approach. Engineers must develop the product or service in a manner that allows achieving the target cost without exceeding it, ensuring that design choices align with cost constraints.

Fourthly: Emphasis on Process Design: This involves analyzing and overseeing each stage of the production process to ensure its efficiency. It requires designing every aspect of the manufacturing process to align with the target cost of the product.

Fifthly : Establishment of Cross-Functional Teams: Manufacturing a product or service without exceeding the target cost requires the collaboration of a team with diverse expertise to ensure the proper management of all aspects in order to meet the cost objectives.

Sixthly: Life Cycle Costs: It is crucial to consider all expenses associated with the product or service throughout its entire life cycle, from the design and planning phases to post-sales activities.

Seventhly : Value chain orientation: Occasionally, the estimated cost might exceed the target cost before production begins (Al-Kabihi, 2014, p. 173). In this case, specialists within the organization need to work on reducing the excess cost by cutting down on production expenses that do not enhance the product or service's value. This is done by studying all stages of the production process, up to product sale; to identify costs or activities that can be eliminated.

2.2 STAGES AND STEPS TO APPLY THE TARGET COSTING APPROACH:

This section outlines the essential steps required for the effective implementation of the target costing approach. The process consists of five fundamental stages:

Firstly: Determining the target price: The target price is the anticipated and defined price that potential customers are prepared to pay for the product or service (Al-Janabi, 2011, p. 181). It represents the selling price that balances the following : (Al-Matarna, 2008, p. 287)

- Prices accepted by the customer through which the enterprise can achieve a desired market share of the product or service, expand the current market share and gain new markets.

- The price should not, under any circumstances, exceed the competitors' prices.

-Prices that enable the enterprise to achieve its target profit while maintaining the minimum profit margin that cannot be compromised.

The process of establishing a market-based target price starts with estimating the price that potential customers are willing and able to pay. This estimation relies on assessing the customer's perceived value and considering the prices set by competitors for similar offerings. Understanding both customer preferences and competitive pricing is crucial for several reasons, including:

- Competition from producers who achieve the lowest cost continuously restricts prices.
- Products or services are offered on the market for short periods, reducing the likelihood of making pricing errors, which could result in a loss of market share and reduced profitability
- Modern customers are more knowledgeable and informed, which has increased their demands for higher quality products and services at lower prices.

Therefore, in line with these market development trends, the process of determining the target price should follow these fundamental stages:

A. Understanding Customer Perceived Value and the Sales and Marketing System:

To grasp the perceived value from the customer's perspective and evaluate the sales and marketing system within the organization, it is essential to interact and communicate with customers through market research. This involves identifying the benefits customers seek and the prices they are prepared to pay for these benefits and features. This is what many companies do today, such as the iPhone mobile phone company.

B-Conducting Competitor Analysis: To measure how competitors can interact with the potential price, a company needs to comprehend their rivals' methods, offerings, costs, and financial health. Generally, products or services with unique features allow a company to set higher prices. Companies like Ford Motors and PPG Industries often acquire competitive insights through feedback from customers, suppliers, or former staff. Another valuable technique, known as Reverse Engineering, involves dismantling and analyzing competitors' products to understand their design, materials, and the technologies employed. However, companies or enterprises are not allowed to use illegal or unethical means to obtain information about their competitors, such as posing as a customer or supplier. (Horngren, 2012, P416)

Major Japanese and other global companies have identified four key determinants for setting the target price, summarized as follows:

- The price customers are prepared to pay for specific features and functions.
- The attributes and pricing of competitors' products or services.
- The features, characteristics, and pricing of competitors' products or services.
- The desired market share, representing the portion of the market the company aims to capture with its product or service.

Secondly: Determine the Target Profit: The target profit is the income an institution aims to achieve per unit of its product or service. It's defined as the targeted financial return needed by the Economic Unit to continue its manufacturing activity; This profit goal is based on a medium- to long-term profit plan and aligns with the strategic planning of the organization or project's management. It represents the desired profit level the enterprise seeks to attain from a particular product or service.

The target profit is determined based on two main strategies:

- ✓ The organization's long-term profit strategy.
- ✓ Short-Term Market Share Strategy

The target profit is connected to the company's projected earnings, particularly those planned in the medium to long term, taking into account the cost of funds that generate these profits. The target profit is calculated based on medium-term profit plans covering a period of 3 to 5 years. The total target profit is then divided into targeted profits for all products that will be marketed in the future.

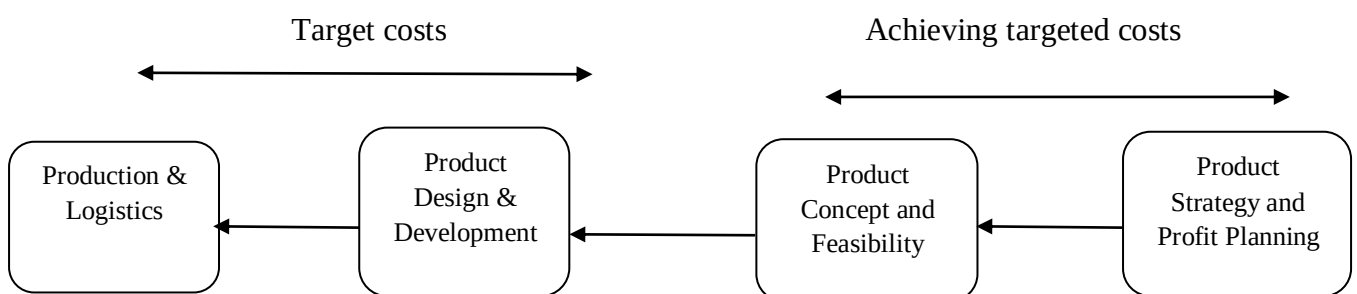
To determine target profits, companies typically use metrics such as Return on Sales (ROS) or return on Investment (ROI). For commercial institutions, ROS is often preferred because it provides a clear and precise measure of each product's profitability, especially in the case of multiple products. This is because calculating ROI for each individual product can be complex and less straightforward. (Al-Janabi, 2011, p. 180).

Thirdly: Determining the target cost:

The target cost, as part of a long-term pricing strategy or target costing system, serves as a mechanism for managing and controlling the costs associated with a product or service during its design phase. This approach aims to establish a competitive price while ensuring customer satisfaction with the product's quality and features. In the process of setting this cost, company management may need to modify the product's design, specifications, or operational processes to achieve the desired cost. Essentially, the target cost represents the maximum allowable expenditure for producing the product or service (Al Shabani and Al Yamour, 2012, p. 219).

The process of setting and calculating target costs is intricate and involves multiple aspects. It can generally be categorized into two primary phases:

Figure (01): Target cost and product development cycle



Source: Liping, Carsten ,November 2016, P 11.

The target cost for a product or service is calculated by deducting the desired profit margin (or targeted profit) from the anticipated selling price. This calculation yields the maximum allowable cost (target cost) for producing and marketing the product or service.

Once the target cost is established, management assesses the projected cost, often referred to as the preliminary cost, which is necessary to manufacture the new product or service. This is determined by assessing current resources, activities, manufacturing processes, as well as the initial engineering design specifications of the new product (cost (Al-Bishtawi and Jarira, 2015, p. 164). These costs encompass all expenses necessary for production and delivery, and often these achievable costs are higher than the target cost allowed.

In response to competitive pressures and market demands, companies often need to lower their product costs. The disparity between the target cost and the actual achievable cost is referred to as the target cost reduction. Once this reduction requirement is identified, efforts are made to reach the target cost by using all necessary methods, tools, and techniques while ensuring not to compromise the essential quality characteristics of the product, which could negatively impact customer satisfaction. One of the approved mechanisms for this is Value Engineering, which will be discussed in the subsequent steps.

However, if the achievable cost meets or falls below the target cost, there is no necessity to seek additional cost-reduction strategies, as the company remains within the permissible cost limits.

Fourthly: Using Value Engineering and Reverse Engineering to Meet Target Costs

Once the target cost has been calculated and compared with the actual cost, which represents the current expense of producing the product or service, The goal shifts to reducing the actual cost to meet the target cost. If the actual cost exceeds the target cost. Management must implement various techniques and mechanisms, with Value Engineering and Reverse Engineering primarily used during this stage.

A-Using value engineering: Value Engineering also known as value analysis, is defined as a systematic differential analysis of various types and levels of functions and characteristics of a diverse product or service against the specified total cost.

This process involves a detailed assessment of various factors influencing the cost, with the aim of discovering methods to deliver a high-quality product or service within a constrained cost.

The goal of Value Engineering is to lower production costs while enhancing the value provided to customers, ultimately achieving the target cost. This is often accomplished by redesigning the product or service to incorporate more efficient methods or materials. However, introducing new designs might involve initial expenses, necessitating the use of new tools and effective management to balance the benefits of these innovations against the need to stay within the target cost (Swenson and Others, 2003, p. 13).

Through Value Engineering, the management of the enterprise analyzes various stages related to manufacturing the product, distribution systems, and all activities and functions associated with manufacturing. The focus is on identifying opportunities to reduce costs without compromising on essential functions, thereby narrowing the gap between the target cost and the actual cost.

The primary aim of Value Engineering is to meet the evolving needs of customers while maintaining and improving quality, all within the defined cost limits. If cost reductions cannot be achieved through redesign, it may be necessary to reconsider the feasibility of the product or service and potentially explore alternative options (Wilbur & Archie, 2000, p. 710).

Value Engineering emphasizes the specifications of raw materials and their consumption to achieve multiple alternative designs for the product or service that fulfill all necessary and essential functions for the customer at the lowest possible cost. Overall, it is a systematic approach to cost reduction during the planning, development, and design phases of a product, ensuring adherence to the target cost (Al-Bishtawi & Jarira, 2015, p. 183).

B-Using reverse engineering (teardown analysis): Involves dismantling competitors' products to analyze their distinguishing features and functions. This technique is primarily used in the initial design of a new product by evaluating how competitors' products are designed and identifying opportunities to improve quality and reduce costs. Companies can understand the functionalities and designs employed in each product, as well as the manufacturing costs

associated with them. This allows the enterprise to gather details about competitors' products and consider modifications that could potentially reduce costs and enhance product quality compared to other competing products, if possible

Fifthly: Employing Kaizen for Target Cost Achievement: Kaizen, or continuous improvement, is a continuous series of small, incremental changes over the long term. It does not require large capital expenditures but rather continuous efforts and commitments from all members of the enterprise or company to achieve higher levels of performance and eliminate wastage and inefficiencies in material, human, and financial resources of the company.

It is also defined as ongoing efforts to discover the best ways to execute operations through research and focusing on core activities to meet customers varied and increasing demands. The key points on which the Continuous Improvement technique relies include:

A-Reducing the utilized resources: It is necessary to reduce resources used in operations that may lead to wastage, such as resources allocated to individuals who do not use them.

B-Reducing errors: Errors result from inefficiency and lack of expertise, therefore hence relying on highly skilled employees to achieve the primary goal of consistently delivering products or services of superior quality at lower costs.

C-Exceeding customer expectations: The Continuous Improvement technique is based on the philosophy of continuously improving the product or service to fulfill and surpass customer expectations and demands.

D-Making operations safer: This is achieved by focusing on production and ensuring a safe and efficient production process, thereby reducing compensations that may be provided to employees due to potential workplace accidents, thus reducing costs.

E-Increasing satisfaction among workers and employees: This is achieved by providing suitable work environments, appreciating competencies, and timely payment of dues.

Overall, this technique aims to dedicate continuous efforts, relying on human resources, to introduce small, continuous, and cumulative improvements to products or services. This leads to producing better products or delivering better services, thereby enhancing the efficiency and effectiveness of company performance, maintaining and enhancing its competitive position in both domestic and international markets.

All these points contribute to achieving the target cost By the Continuous improvements in product design, development in setup, and enhancement of machine and equipment performance to reduce waste and inefficiency. It also works on increasing employee training to implement daily changes that can improve cost performance and product or service quality, while reducing waste costs resulting from errors made by less skilled and experienced employees. Overall, the Continuous Improvement technique directly contributes to continuous cost reduction during the production and operational stages from the beginning (Jawad, 2009, p. 169).

3.STUDY OF TOYOTA'S IMPLEMENTATION OF TARGET COSTING IN THE AUTOMOTIVE INDUSTRY

Through this topic, we will study the case of Toyota regarding its adoption of target costing in pricing its products, the level of success achieved, and its methodology in implementing this approach, as well as its impact on performance.

3.1 ESTABLISHMENT AND DEVELOPMENT OF TOYOTA

Toyota Industries Corporation was founded on November 18, 1926, by Sakichi Toyoda, whose name became synonymous with the company as he invented the first wood textile weaving machine in 1890. He developed it through several stages in 1896, 1906, and 1924, culminating in the invention of the automatic loom type G with a feature for continuous shuttle change (automatic loom).

- 1926 Toyoda Automatic Loom Works was founded to produce automatic looms.
- 1929 Kishiro Toyoda sold the automatic loom patent to Platt Brother and Co. in the UK. Then in 1933 The company established a car manufacturing department.
- 1934: Completion of the steel production plant and experimental station led to the creation of the A-type engine.
- 1935: The company laid the foundation for Toyota with the production of the A1 model car, based on the G1 truck design.
- 1937: The car division became independent, prompting a change in the company's name to Toyota Motor Corporation.
- 1946 Japan exported its first loom after World War II.
- 1949: Toyota's shares were listed on the Tokyo, Osaka, and Nagoya stock exchanges.
- 1953, Kyowa Works commenced its activities in engine manufacturing and car assembly.
- The establishment of the automotive department occurred in 1955.
- 1960: Toyota Central Research and Development Laboratories were established, funded by ten Toyota Group entities.
- 1970: Operations began at the Takahama Plant, focusing on industrial vehicle production.
- Established in 1988, Toyota Industrial Equipment Manufacturing (Tieme) was founded in Columbus, Indiana, USA, through a collaborative effort with Toyota Motor Corporation.
- 1991: Engine production reached 5 million units.
- 1992: The Environment Committee was established, and production of automated storage and retrieval systems began.
- 1993: Toyota launched its first environmental action plan.
- 1994: Toyota Industry Kunshan (Tik) was founded in China through a collaboration between Toyota Tsusho Corporation and Lioho Machine Works.
- In 1995, there was the founding of Toyota Industries Equipment (Tiesa), which is presently recognized as Toyota Material Handling Manufacturing France Sas, in France as a joint effort between Toyota Motor Corporation and Manitou B.F.

-In 1998, TD Deutsche Klimakompressor (TDDK) was established in Germany through a collaborative effort with Denso Corporation, focusing on the manufacturing of automotive air-conditioning compressors.

-In 2000, Toyota completed the acquisition of the Swedish company Bt Industries A.B, now recognized as Toyota Material Handling Europe A.B, which stands as a prominent global producer of warehouse equipment.

-In 2001, a significant alteration took place as the company's name was revised to Toyota Industries Corporation.

-In 2002, the inception of Advanced Logistics Solutions occurred, dedicated to strategizing distribution center systems.

-In 2003, Toyota Materials Handling commenced the distribution of forklift trucks in China, while also incorporating AICHI Corporation, renowned for its production and sale of aerial work platforms mounted on trucks, as a subsidiary under Toyota.

-In 2005, Toyota Industries Trading & Logistics (Ttrl) came into existence.

-By 2010, the cumulative car production hit a milestone of 8 million units.

- In 2011, Toyota Industrial Equipment Vietnam was established with a focus on the manufacturing of truck components and small-scale warehouse equipment.

- In 2013, Toyota completed the acquisition of Cascade Corporation, an American enterprise specializing in the manufacturing and marketing of industrial equipment accessories.

- In 2014, Toyota Industries Global Commercial Finance was founded in the United States with the primary objective of managing sales financing to bolster the automotive sector.

- By 2015, the company had secured the highest market share in Japan, dominating the Japanese forklift truck market for an uninterrupted period of 50 years.

- The year 2016 marked the achievement of a total car production of 10 million units, coinciding with the initiation of the sixth environmental action plan.

- In 2017, Toyota expanded its global footprint by acquiring Boston Solution in America and Vanderlande Industries Holding in the Netherlands, aiming to provide comprehensive solutions for material handling on a worldwide scale.

- In 2020, the production and export of electric compressors commenced.

- 2021: Production of aircraft batteries began.

- 2022: The Ishihama Plant commenced operations, culminating in the completion of aircraft battery production and the commencement of JAT 910 jet engine manufacturing. (Toyota Industries Corporation, 2023) .

3.2 A SUCCESSFUL MANAGEMENT MODEL IN THE AUTOMOTIVE INDUSTRY:

Today, Toyota has emerged as one of the largest and leading companies in the global automotive market, surpassing Volkswagen in annual sales in 2020. The Toyota brand remains the best-selling marque within the company, with total sales reaching approximately 8.9 million vehicles in 2022. The company has made significant strides in the electric vehicle market, being the first and largest automaker to introduce a hybrid car in its production line. In 2022, Toyota was ranked among the top five companies in electric vehicle manufacturing. The company's net revenues have increased by approximately 18.4% annually, reaching nearly 37.2 trillion Japanese yen in March 2023, approximately equivalent to \$279 billion USD.

Additionally, Toyota sold approximately 10.5 million vehicles from January to December 2022. Japan and North America remain Toyota's largest regional markets. The company faces strong competition from General Motors and Tesla. (Statistica Research Department, June 2023)

Table 01: Evolution of TOYOTA's market capitalization from March 31, 2019, to March 31, 2023:

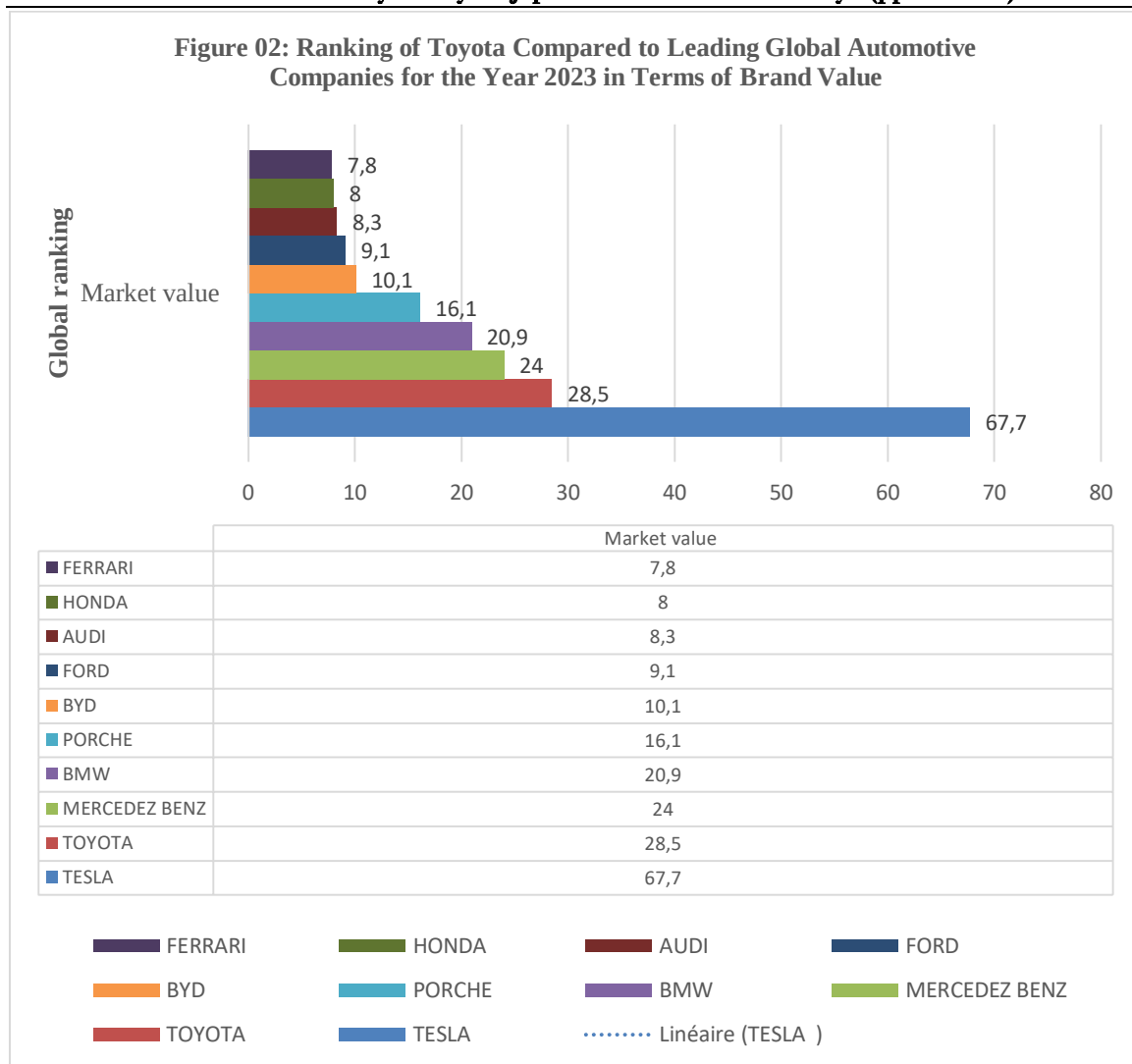
Year	2019	2020	2021	2022	2023
Market Capitalization (in billion USD)	191	197	254	252	192

Unit : Billion US Dollars

Source: Mathilde Carlier(Statistica.com), 28 June 2023

The market capitalization of Toyota has shown a consistent upward trend over the past decade, as highlighted by the statistics in Table 01. As of March 31, 2023, Toyota's market capitalization reached approximately \$192 billion USD.

It's noteworthy that the company's stock peaked at around \$183 USD in April 2022, positioning it as the second-highest market capitalization currently, following Tesla. (Statistica Research Department, June 2023)



Source: Mathilde carlier, (Statistica.com) , 28 June, 2023.

According to the data from the previous figure, Toyota's position has declined. After being ranked first globally in March 2020, Toyota dropped to second place during the same period in 2023, behind Tesla. Despite this, Toyota remains a top leader and highly successful company in the automotive manufacturing and production industry.

3.3 TOYOTA'S TARGET COST PRICING SYSTEM

Firstly: The seven main functional areas in Toyota management system:(Monden,2004, P1-131) Since World War II, most Japanese companies have adopted efficiency as a key management principle, which refers to the ability to respond to all changes that the company may face in its environment. This is how Japanese companies gained their competitive advantage in the global market. Toyota's management system is renowned globally for its effectiveness, particularly through its implementation of the Just In Time (JIT) production method. This system is deeply integrated with Toyota's overall management framework. The various branches and subsidiary systems work in concert, supporting functions such as production management, sales, new service development, financial management, and personnel management. The mutual support among the subsidiary systems is the key factor that

contributed to Toyota's excellent performance and its management system. Below is a brief presentation of the functions and the seven main management systems at Toyota.

A-Financial Management System: Financial management at Toyota involves methods to ensure a balance between capital expenditures and capital applications. For that, any new model for a car costing \$365 million USD (approximately 50 billion Japanese yen) is regarded as the minimum requirement. Therefore, Toyota's management employs optimal methods to secure timely financing through portfolio investment management.

B- Target Costing and Kaizen System in Automobile Manufacturing: As a profit-oriented company, Toyota strives to achieve annual net profit and distribute dividends to its shareholders. To ensure profitability, the company allocates funds for investments in its factories and other purposes, aiming for both short-term and long-term profit goals.

The company uses a target costing system to control costs from the product development stage. Subsequently, during production, Toyota employs the Kaizen system to implement continuous cost-saving improvements.

C- Functional Management: Unlike American automotive companies with decentralized organizations comprising multiple profit centers, Toyota is fully centralized. Therefore, the responsibility for establishing communication links between various departments, ensuring cooperation, coordinating quality control across the company, and managing costs is delegated to a functional meeting unit. This unit is where top management decisions on policies and business plans are made for implementation in each department.

D- Flat Organization and Personnel Management: Toyota introduced a flat organizational structure where decision-making authority is decentralized to managers at middle and lower levels across all company levels. This approach prevents delays in decision-making.

E- Sales Management: The strength of Toyota's sales lies in its specialized sales network, where effective planning of sales incentives and the capabilities of sales personnel are emphasized.

F-New Product Development System: In the automotive industry, the new product development system marks the starting point for creating new vehicles. This process begins with market surveys and planning for the new product, continues through exterior and interior design, structural design, and designing major components. It then progresses to manufacturing the initial prototype, testing it, setting up the production line, and so forth. Toyota appoints only one chief engineer to oversee the entire development process through a well-planned and structured system.

G-Production Management System: Toyota utilizes a network that enables efficient and effective information flow, allowing for rapid data processing and advanced electronic communications. Today, it employs technologies such as Manufacturing Execution Systems (MES), Computer Integrated Manufacturing (CIM), and Just In Time (JIT) systems across its subsidiaries. These systems collectively contribute to production management by facilitating quantity determination, market analysis, and identifying suitable delivery times.

H-Target Costing Management System at Toyota: There is a significant difference between the expectations of managers in the automotive industry in Japan compared to their Western counterparts. Western automotive companies typically rely on cost information to make pricing and investment decisions. In contrast, Japanese companies, such as Toyota, use cost information to control costs. They implement a cost reduction strategy right from the design phase.

Specifically, Toyota applies the Target Costing method to minimize costs during the product design stage. This involves setting specific targets for reducing overall costs and then striving to achieve these new targets by modifying the design in line with cost reduction goals. The company rigorously tests the new design costs and compares them with the costs of previous designs to ensure cost reduction while implementing the new technology. This concept is fundamental for Toyota in planning its objectives.

Secondly: Steps of Target Costing at Toyota: We outline the main stages of Toyota's pricing process below:

A-Product Planning: The pricing process at Toyota involves several sequential decisions in terms of pricing, production, and costs, Toyota begins by setting the retail price for a new vehicle. This is done by starting with the price of the previous model and incorporating additional value for new features and enhancements. Following this, the proposed production volume is studied by the sales department. Using these figures and calculations, along with market trends and competitor analysis, the focus shifts to cost planning. The company uses the product plan, retail price targets, and production volume to establish the desired profit and set the target cost, with strategic studies determining costs three years before the model's release.

B- Differential Cost Estimation: Toyota's method for estimating costs involves comparing the new model with the old one, focusing on cost differentials rather than summing all additional costs. This approach has proven highly effective, requiring less effort while providing accurate and crucial results. It enables departments to understand cost fluctuations by excluding variables like wages and indirect expenses common to both models. It allows Toyota to base decisions solely on variable costs related to design and production volume.

C- Cost Planning Enhancement: In cost planning, Toyota aims to reduce costs through improved model design. Instead of applying uniform percentage reductions across departments, Toyota assesses each department's capacity for cost reduction. This is achieved through cost manager meetings with department heads to agree on appropriate cost reductions, after which each department is tasked with implementing agreed-upon reductions in their own way.

Conclusion:

In this study, we have endeavored to explore the mechanisms and adoption strategies of target costing systems, analyzing key factors and principles contributing to its success. We have also aimed to identify the types of companies that can thrive by implementing this system, drawing parallels with companies in the automotive and electronics industries, with a specific focus on Toyota's experience.

Through our investigation, it became clear that Toyota has successfully integrated target costing into its operational framework, leveraging it to maintain competitive advantages and enhance product offerings. The adoption of target costing has allowed Toyota to effectively manage costs while delivering high-quality products that satisfy market demands.

Results of Hypothesis Testing:

Our testing of the core hypotheses has led to the following conclusions:

- **First Hypothesis Confirmation:** Our analysis confirms the validity of the first hypothesis, which asserts that proper adoption of target costing contributes to enhancing company performance and achieving effective cost management. This conclusion stems

from our analytical study, which showcased successful implementation steps. We observed tangible results in the strategic success of companies and the effectiveness and quality of their products when target costing is correctly adopted.

- **Second Hypothesis Confirmation:** The examination of Toyota's experience, validates the second hypothesis. It demonstrates a clear correlation between the fundamental principles of target costing and the outstanding outcomes achieved by Toyota. The company has effectively utilized target costing to maintain its market position and ensure the quality and efficiency of its products.

-Study Results:

- ❖ **General results:** Through our study, we have arrived at several key findings, summarized as follows:
- 1- **Contribution of Target Costing System:** Target costing significantly contributes to delivering high-quality products and services that meet customer expectations at sustainable prices. By focusing on cost management from the outset, companies can ensure profitability while still meeting the quality demands of consumers. This dual focus helps companies maintain a competitive edge in the market, as they can provide value-driven offerings that resonate with customer needs.
 - 2- **Promotion of Performance and Cost Awareness:** The study revealed that target costing enhances awareness of performance and cost factors among stakeholders. This heightened awareness fosters a collaborative environment where design engineers, suppliers, and customers actively participate in discussions about costs and performance. Such engagement not only leads to better decision-making but also cultivates a culture of transparency and accountability, allowing for more informed strategic choices.
 - 3- **Improvement of Supplier Capabilities:** Setting target costs enhances suppliers' capabilities for innovation and development. When suppliers understand the cost constraints and expectations, they are motivated to find creative solutions that align with the company's goals. This mutual benefit strengthens relationships and promotes a collaborative ecosystem where both suppliers and companies thrive.
 - 4- **Cost Reduction Benefits:** Target costing emphasizes the importance of reducing costs during the design phase, as it is often challenging to decrease costs once they have been incurred. By focusing on cost reduction early in the product development cycle, companies can make strategic adjustments that lead to significant savings, thereby improving overall profitability. This proactive approach not only mitigates risks but also empowers teams to innovate and refine processes for better efficiency.
 - 5- **Cost Savings through Value Chain Activities:** The facilitation of cost savings through value chain activities highlights the interconnectedness of different departments and processes within the company. Target costing encourages a comprehensive view of cost management, prompting companies to assess how each segment of their value chain contributes to overall costs. By optimizing these relationships with suppliers and customers, companies can produce high-quality products or services at lower costs, reinforcing their market position.
 - 6- **Development of Collaborative Work Culture:** Target costing fosters a collaborative work culture by involving cross-departmental teams in design, development, and execution. This collaborative approach enhances communication and teamwork, essential for achieving organizational goals. By bringing diverse perspectives together, companies can generate innovative ideas and solutions that drive success.

In essence, our findings underscore the effectiveness of target costing as a strategic tool for enhancing operational efficiency and achieving competitive advantage. Companies that adopt target costing, can leverage its principles to optimize cost structures, streamline production processes, and foster innovation throughout their operations thereby achieving sustainable growth and customer satisfaction.

❖ **Results of Toyota case study:**

By studying Toyota's approach, we have discerned several critical success factors of target costing:

1. **Strategic Alignment:** Toyota's approach emphasizes the importance of aligning pricing decisions, production capabilities, and cost management strategies. This strategic alignment ensures that all aspects of the business are working towards common goals, allowing Toyota to respond effectively to market changes. The meticulous planning of product pricing and production volumes based on thorough market analysis illustrates how strategic foresight can lead to sustained success.
2. **Cost Management Integration:** The integration of cost management into the product development process at Toyota illustrates the value of a proactive stance toward cost reduction. By considering costs from the beginning, Toyota can optimize its resources and streamline production processes. This strategic foresight reduces waste and enhances operational efficiency, setting a benchmark for other companies to follow.
3. **Supplier Collaboration:** A critical factor in Toyota's success with target costing is its collaborative relationship with suppliers. By involving suppliers early in the design and development phases, Toyota fosters innovation and cost-effective solutions throughout the supply chain. This collaboration not only enhances product quality but also builds trust and loyalty among suppliers, creating a robust support system that drives mutual growth.
4. **Continuous Improvement:** The culture of continuous improvement within Toyota is supported by its commitment to regularly review cost structures and product offerings. This iterative process allows the company to make necessary adjustments that enhance efficiency and maintain competitiveness. By encouraging employees to seek out areas for improvement, Toyota sustains its leadership position in the industry.

In conclusion, Toyota's experience exemplifies the effectiveness of target costing in enhancing operational efficiency and sustaining market leadership in competitive industries. Companies in automotive and electronics sectors, among others, can benefit significantly from adopting similar cost management strategies to achieve sustainable growth and profitability.

Bibliography List :

Books :

- 1- Horengren ,Charles T. ,and others , (2012) , Cost Accounting A Managerial emphasis , edition 14 ,Pearson Education Limited , England .
- 2- Wilbur , I smith, and Archie, Lockamy,(November-December 2000), Target costing for supply chain management an economic frame work, John wiley & sons Inc, Hoboken, New jersey, America.

Journal articles & Reports:

- 3- Al-Bashtawi, Suleiman, and Jarira, Talal Suleiman, (2015), The Importance of Applying Strategic Cost Management and Competitive Strategies to Achieve Competitive Advantage for Jordanian Public Industrial Companies, Journal of Administrative Sciences Studies, Volume 42, Issue 1, University of Jordan, Amman, Jordan. (Written in Arabic).
- 4- Al-Habiti, Qasim Mohsen, (2009), Adopting the Target Costing Approach in Commercial Institutions: An Applied Study in Al-Muharir Commercial Company, Nineveh Branch, Tandheem Al-Rafidain Journal, Volume 31, Issue 94, University of Mosul, Iraq. (Written in Arabic).
- 5- Al-Janabi, Muath Khalef Ibrahim, (2011), The Strategic Role of Target Costing Technique in Achieving Cost Leadership, Tikrit Journal of Administrative and Economic Sciences, Volume 7, Issue 21, Tikrit University, Iraq. (Written in Arabic).
- 6- Al-Kabihi, Majdi Wael, (2014), The Application of Target Costing and Value Engineering as a Approach to Cost Reduction in Palestinian Public Industrial Companies, Journal of Administrative Sciences Studies, Volume 41, Issue 2, University of Jordan, Amman, Jordan. (Written in Arabic).
- 7- Al-Matarna, Ghassan Falah, (2008), Requirements and Obstacles of Implementing Target Costing in Jordanian Public Industrial Companies: A Field Study, Damascus University Journal of Economic and Legal Sciences, Volume 24, Issue 2, Damascus University, Syria. (Written in Arabic).
- 8- Al-Shabani, Saleh Ibrahim Younis, and Al-Yamour, Ali Hazem, (2012), The Impact of Adopting the Total Cost of Product Life Cycle Model on Cost Reduction and Return Improvement, Kirkuk University Journal of Administrative and Economic Sciences, Volume 2, Issue 2, Kirkuk University, Iraq. (Written in Arabic).
- 9- CIMA ,(October 2005), Target Costing in the NHS Reforming the NHS from within ,Cima NHS working group ,Cima Discussion paper.
- 10- Dan Swenson, & others, (winter 2003), Best practices in Target costing, management accounting quarterly journal, volume 4, numéro 2 , America .
- 11- Dimi , Ofileanu, And Simon, BumBescu Sorina , (2014),Target Costing the response of the Managerial accounting to changes in the environment ,annals of the Constantin Brancusi ,Economy Series , Issue 3,University of Targu Jiu , Romania.
- 12- Feil ,Patrick ,and others ,(Spring 2004),Japanese target Costing a historical perspective, International Journal of Strategic Cost management , USA .
- 13- Jawad, Salah Mahdi, (2009), Employing the Disaggregated Analysis Method in Enhancing Product Value in the Context of Target Costing Technique: An Applied Study in the General Company for Industries, Volume 7, Issue 3, University karbalaa, Iraq . (Written in Arabic).
- 14- Lawrence Imeokparia & Sanusi Adebisi, (2014), Target Costing and Performance of Manufacturing Industry in South-Western Nigeria, Global Journal of Management and Business Research, D Accounting and Auditing, Volume 14 , Issue 4 , Version 1.0, USA.
- 15- Liping, Jiang, Carsten, Orts Hansen, (November 2016), Target Costing As A Strategic tool to commercialize the product and service Innovation ,CBS Maritime ,Copenhagen Busniss School ,Denemark.
- 16- Meysonnier, François, (décembre 201), Le targer costing état de l'art, revue finance contrôle stratégie, volume4, Issue 4 , Université de Metz, France.
- 17- Tanaka T, (spring 1993), Target costing at Toyota , journal of cost management.

- 18- Yasuhiro, Monden (translated by Bruce talbot), (2004), Toyota management system linking the seven key functional areas, classics in paperback, productivity press , new York, America.

Internet websites:

- 19- Statistica.com : Carlier, Mathilde , (2023), toyota motor corporation statistics and fartors , <https://www.statista.com/topics/1893/toyota/> , (consulted on 23/june/2023)
- 20- Statistica.com : Carlier, Mathilde , (2023) ,Most valuable automotive brands world wide by brand value , <https://www.statista.com/statistics/267830/brand-values-of-the-top-10-most-valuable-car-brands/>, (consulted on 23/June/2023)
- 21- Mathilde carlier, (2023), toyota's market capitalization between march 31 2019 and 2023, statistica research department , <https://www.statista.com/statistics/279650/market-capitalization-of-toyota/>, (consulted on 28 /june/ 2023)
- 22- Toyota-idustries.com: Toyota industries corporation, (2023) , history , <https://www.toyota-industries.com/company/history/index.html>, (consulted on 17/ July /2023).