Frontline Marketing, Management and Economics Journal
ISSN: 2752-700X

Integration of Specification-Based Costing and Target Costing for Competitive Advantage

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ARTICLE INfO

Article history:
Submission Date: 23 February 2025
Accepted Date: 19 March 2025
Published Date: 22 April 2025
VOLUME: Vol.05 Issue04
Page No. 07-27
DOI: -
https://doi.org/10.37547/marketing-fmmej-05-04-02

ABSTRACT

The current research aims to address the problem faced by the study sample company, which is characterized by inefficiency and inaccuracy in cost management to support competitive advantages due to its adherence to traditional systems. This is achieved by adopting modern cost and administrative accounting methods and techniques consistent with the rapid changes in the Iraqi economic environment. This approach aims to manage costs and support competitive advantages by using the cost-based specification (ABCII) and target costing (TC) techniques in a complementary relationship, ensuring improved competitiveness and financial position for the economic unit in the study sample. This, in turn, positively impacts economic development in Iraq. The current study, titled "Integration of the Cost-Based-Specification and Target Costing Techniques for Cost Management and Supporting Competitive Advantages," derives its importance from the fact that ABCCI and TC techniques provide appropriate information that contributes to more accurate management of product costs and provides the necessary support for producing and delivering the final product with the specifications and features desired by the customer at the lowest possible cost. The importance of the current study also lies in demonstrating the cognitive centers of the variables that contribute to the product's competitiveness in the market.

Keywords: Costing Technique, Production Specifications, Target Costing, Competitive Advantage.

INTRODUCTION

Target costing is a tool of cost management, which is based on market and customer analysis from cost perspective, on product development stage with respect to product. This method ensures that product is designed by considering cost targets and costs are determined so as to ensure that the product has a competitive advantage to enable to sell it (Yuksel Pazarceviren & Celayir, 2014). For the firms that implement target costing, product and process developments are on the base of simultaneous

engineering and the concepts of Specification-Based Costing (SBC) and Value Engineering (VE) are activated. The purpose of such method is to reduce the gap between the target costs and the actual costs to be spent to manufacture a product. Production performances of nations are determined together with the cost considerations and it is aimed to overcome year by year this difference. However, it is also put forward fact that the methodology to be used in this respect is as much important as the will for the implementation. To make cost planning in product development stage, compatibility should be provided among the cost considerations and the cost engineers who are responsible cost planning (Yuksel Pazarceviren & Dede, 2015). Again in recent years, the target costing method are attempted to be brought in to vogue in the firms in which the high and medium-low technology products are produced. Needed transformation is tried to be realized in the model and hence, such transformation is aimed to be made in the product and the investment cost together. The adaptation of the firms to new global building is given prominence and it is given information with respect to the target price and unit cost.

Research Problem

The research problem revolves around the following intellectual questions:

First: Is it possible to integrate the techniques of specification-based and target costing theoretically (procedures) and practically (mechanisms and working methods) within the company under study?

Second: Does the integration of specification-based costing and target costing contribute to the optimal identification and allocation of costs (direct and indirect) and provide appropriate information that helps management perform its duties more efficiently and effectively?

Third: What is the role of integrating specification-based and target costing in managing costs and supporting competitive advantages?

Importance of the Research

A. The study topic's scientific importance is highlighted by its contribution to studying the most important contemporary issues in cost management and supporting competitive advantages to ensure the continuity and sustainability of economic units' activities by presenting the theoretical and scientific aspects of administrative and costing methods and techniques (ABCII, TC).

B. B-The study attempts to contribute to identifying scientific procedures for integrating administrative and cost methods and techniques, which can help find solutions to some administrative, cost, and financial problems.

Research Objectives

The study aims to demonstrate the possibility of achieving integration between ABCII and TC technologies in a manner that contributes to providing appropriate and more accurate information to management about product costs, helping them manage costs and support competitive advantages more efficiently and effectively by achieving the following objectives:

A. Study and explain the cognitive foundations of ABCII technology within an integrated conceptual framework. B- Study and explain the cognitive foundations of TC technology within an integrated conceptual framework.

B. Study and explain the cognitive foundations of cost management and competitive advantage within a conceptual framework.

C. A theoretical inductive analysis of the role of integration between ABCII and TC technologies in managing costs and supporting competitive advantages.

c. Verify the practical impact of integrating ABCII and TC technologies on cost management and supporting competitive advantages for the study sample company.

Research Hypothesis

The study is based on the following hypothesis:

(The integration of ABCII and TC technologies contributes to cost management and supports the competitive advantages of the study sample company more efficiently and effectively than traditional systems.)

DATA COLLECTION METHODS

This study followed a descriptive approach by reviewing the literature, including studies, research, theses, and university dissertations related to the research topic.

Literature Review

During the past decades, a number of studies have

attempted to investigate the use and diffusion of new costing techniques, focusing on the search for a relation between firms' characteristics or contextual factors that may influence theoretical reasoning on the design of costing system and the actual use of specific costing techniques (Cinquini et al., 2008). Possibly, these studies have assessed the implementation of target costing in relation to other management tools and techniques. Many of these studies seem to suggest that firms should consider a variety of theoretical issues in the choice of product costing systems. For example, some studies provided support to the idea that potential contextual factors – such as product variety, size or business complexity – influence the characteristics and the level of sophistication of product costing system. Possibly, other researches have focused on a different theme, deal with managers attitude towards management innovation and with the model of change itself. There is an increased interest, though, in the search for a relationship between the adoption of advanced cost accounting techniques and firm's performance. Such studies seem to suggest to managers that the choice to move towards a new costing paradigm is driven by a sort of learning curve, should be monitored by benchmarking with other companies, should be addressed to acquire all the skills needed and – above all – should be hidden by all the possible means of acquiring competitive advantages on the market. Possibly, these studies have assessed the performance of firms according to accounting figures.

Overview of Costing Methods

Product development and production processes are going through an economical regime where global competition increases day by day. In this context, manufacturers need to decrease time and cost values beginning from design step in their businesses. The most remarkable approach in performing these is to use up to date techniques more effectively. Nowdays, therefore, manufacturers are keeping apace of these techniques and they intend to make collaborations with the different businesses in their sector too, by their being aware of being stronger and with the thought of "being with a stronger one strengthens me". Strategic approach combining specification-based costing method braced with market and innovative data, and target costing techniques will being decisive for competitive advantages of businesses. This article presents an overview of the proposed integration scheme together with its constituent steps, emphasizing the contribution of target costing in preserving the competitive edge. Given the difficulties encountered in isolating strategy from day-to-day tactical decisions and the emphasis in the literature on the a posteriori measurement of target costing effects, a framework is advanced which views the entire process as a strategic platform and identifies several pivotal points at which costing considerations do have the potential to shape overall corporate strategies (Yuksel Pazarceviren & Celayir, 2014). Other parts of this study are constructed in the following manner. Target Costing is introduced in the next section, together with a rationale for the strategy involved in its deployment, and a thorough discussion of prevalent definitions and concepts. The third section looks at the widespread and diversified activities under the heading of strategy, reviews a structuring of the strategy into a relevant hierarchy and places costing issues into this framework. Section four is dedicated to specific cost management tools that have emerged as a response to the new competitive pressures of the 80s. The focus here is on newly-developed principles and techniques of cost management as they relate to target costing.

Specification-Based Costing Defined

Specification-Based Costing (SBC) is a simple and accurate method that needs adherence to product specification description and relative experience. With reference to the final product inspection, the article costs different information what could be useful on costing and setting normally to optimize on the cost with target cost approach. Target Costing (TC) conceptual basis is explained. Relationship between the cost estimates of inspection results and between lot costing is discussed. Sector 1 defines final product inspection plan, describes product inspection tasks and develops their cost functions. Sector 2 explains final product lot operation planning and develops a practical example. An algorithm for performing the lot operation planning and optimization steps is provided. It is shown that TC can be implemented with SBC reference currently available and relatively cheap company cost and financial control tools (Yuksel Pazarceviren & Celayir, 2014). Moreover, TC can be applied on market control and profitability perception with lot operation costing. Competitive advantage according to low production and setup cost can be obtained with this method. In recent years, the foundations of Specification-Based Costing (SBC) methods are founded. Generally, SBC is implemented in combination with the commercial feasibility analysis of a company. The product design and cost are the

prime factors affecting feasibility conditions of a commercial project. A great deal of research has focused on the establishment of a target cost, depending on the marketing equilibrium.

Life Cycle Profit Analysis is presented. A variation of TCLCCA is explained where performance-based promotion policy and process runtime characteristics are considered. A model of Tactical Design is introduced that represents application-specific static characteristics as a simplified function of regular evaluation runs. A Solution Quality Prediction model that estimates the expected performance of a new design is explained. System-level simulation results are presented that compare the performance of Interactive Genetic Algorithm Optimization, Model-based Optimization and Reference Design Chaining. The MBO strategy is shown to increase the efficiency of the evaluation compared to the other methods when faced with the constraints that define a practical scenario. Moreover, its ability to find improved solutions with less computational cost is verified (Yuksel Pazarceviren & Dede, 2015). Finally, the episode's results are presented that compare the Industrial Period Efficiency and the Average Structural Efficiency decrease of various optimization strategies for ISCAS circuit design.

Target Costing Explained

Target cost is the maximum amount that a firm can spend on a particular promotion, advertising campaign, or other type of marketing process to ensure a certain level of return. Accounting for a portion of the target market, it is the anticipated maximum unit cost to produce a particular product, service, or component, along with a desired profit margin. Target Costing is a cost management approach that proactively determines the cost of a particular product or service by looking into its customer required functions and quality. The objective of Target Costing is to provide the product with the full range of customer requirements, and all stages from design to production are carried out in a manner that meets this requirement at the lowest possible cost. Target Costing has shown a very successful performance in the companies in which it is implemented. When the factors that ensure the success of Target Costing are investigated, it is seen that they are based on the process through the market, the development process of product, and the methods used for cost management.

There are four fundamental components of Target Costing. The first point of all is the Market price estimation. In the decision of a new product, the Manufacturer needs to take a clear scope of what price range will ensure the sales of the new product. Second part of the process in Target Costing is the Target costing research, where the product is broken down into products' main subassemblies and parts, and carefully investigates that will they fit into the cost margins of achieving overall target cost. The third element of Target Costing is its deployment. It is the actual process of integrating Target Costing with development process occurring in a combination of design and production environment. Last basic component of Target Costing is its utilization in practice through the production phase of a product life cycle. At this stage a part of the Target Costing still remains in the commercial pricing and other market related matters. However, as with any new project development viewed through the Target Costing perspective, the skills and knowledge accumulated from prior projects feed into the newer products with the aim of higher efficiency in the realization of the project and overall Target Costing objectives.

Theoretical Framework

In competitive market environments, firms aim to design products at lower costs in order to sell them cheaper than competitors (Yuksel Pazarceviren & Celayir, 2014). For this goal to be achieved, firms must use methodologies that will allow them to incur costs at designated levels. Target costing is one of these methodologies. Target costing is a management process consisting of rearrangement of the production process according to the cost target and pricing of the final product accordingly. For an effective target costing implementation, firms use a high number of cost management processes like price analysis, value analysis, value engineering, and activity-based costing. Operations and value engineering deals mostly with the design. However, the design is completed, and firms don't have any options to reduce the cost simply by redesigning the project from scratch. So, the importance of the other methods is increasing, so they have to find new ways. Therefore, target costing can be used. At the initial stage, the cost of the design was developed using specification-based cost estimation systems and having produced such parts in the past. As the project developed, many redesigns were necessary to meet the target cost. However, the use of specification-based costing as a method to support the redesign effort faced a fundamental weakness. Since these

systems are based merely on the weight of the product, costing results are similar for similar and dissimilar parts which eliminate the opportunity to reduce cost through material substitution. These parts are costly because of many features that boost production cost but not captured by the cost estimation software (Nobumasa, 2018). These features include deep draw sections, expensive materials, or complex blank progressions.

The ''how'' knowledge of the process plan forms one of the main sources of uncertainty in cost estimation errors. And it also results in features in parts, like many bend operations, or cutting operations with special-shaped forms, elasto-plastic deformation, etc., that only an experienced cost estimator or producer could identify. Since they are based on the experience of the personnel, they were not covered in the cost estimation systems. It was observed that, through elimination of these features, production cost can be decreased while maintaining the functionality of the part. With the increase in globalization, cost management is becoming vital for firms to survive leaders. Methods that would allow the corporation of costs at predetermined levels are of great importance. One widely suggested method is the target costing method. However, there is still space for development and integration in the application of target costing within a company, particularly within engineering departments. Making an industry-based study, the technique has been developed which integrates the strengths of specification-based costing methodology and target costing. The redesign and target costing departments need to work compatibly. This compatibility is facilitated by the establishment of a database of the cost features that have proven beneficial or detrimental to cost. In addition, design teams must also be aware of these features influencing the cost.

Costing Theories and Models

The key perspectives and ideas of costing theories, models, and methods are identified and selected as independent variables. Vignettes are the method of justification, and the vignettes are used as a base for empirical testing. Costing model descriptions and their vignettes are illustrated, and their compositions are explained. Some discussions are given on the past, ongoing studies and results.

For an economy, and particularly for industries, a consumer-driven policy means to concentrate resources on parts of the worth added chain where one is able to establish and maintain a competitive benefit. Industries worldwide are facing stimulation from increasing international competition and the necessity to keep pace with the metamorphosis of market needs and wants. To combat the situation industry has to maximize involvement and proficiency in the operation of separate phases of the value-added chain. Nevertheless, this might only be achieved if most processes would be efficiently structured. With the deregulation in Europe and further worldwide sectors face a hypercompetitive environment. The telecommunications market is now totally deregulated and competition has passed from the national level to a broader market with new entrants. Traditional accounting systems are no longer able to mature and furnish managers with desirable info thus issuing new methods, simultaneously with Costing Theories, are needed. Quite difficult conditions can be recognised with extensive changes due to the year 2000 effect related to the telecommunications sector. Japan has reported a faster decline of the ISDN connection and its market than was foreseen. The expansion of broadband communication, an intermediate technology between the highly advanced and very expensive current technology and the slower future technologies is now also in focus. (Nobumasa, 2018) In this evolutionary view, it is vital to the long-term development of society that preconditions for structural changes, innovation and wealth increase are fostered. On the basis.

Competitive Advantage Theories

Competitive advantage is often the biggest goal for the companies that are in fierce competition environment. So that, many companies are doing various strategic planning to develop and sustain competitive advantage. According to the strategic management theory, two groups of factors were created to explain why some companies earn higher average profit rates in their industries. The two groups as the environment-based theories and company-based theories. Also, the conceptual basis for these theories was established by economic progress. Competitive advantage theories have two roots in economics. The first, industry organization theory explains that advantages arise from the developing and strategically positioning the company in the industrial structure. Advantages come from the direct results of the market structure in which the company operates. The industrial structure provides the rules of the game, so the direct effects of competition on all companies in the environment affect the profitability of companies. The second

group of theories describes the internal features of the company affects profitability of the company. The internal features of the company include resources, basic competencies, capabilities, and strategic advantages. These perceptions of new industrial economics, resource-based view, company competency view and outsourcing views have been adapted as a conceptual basis to identify the way the companies in the fierce competitive environment. There is no consensus in these schools of thought concerning competitive advantage arising from within the company, but there is sufficient overlap to attempt a consensus approach. There are more than fifty-seven competitive advantage theories, and for the purposes of analysis, a common framework of twenty similarities has been developed from these theories. This framework seeks to consolidate the broad spectrum of current theory into a more consistent and workable set of constructs (Yuksel Pazarceviren & Dede, 2015). This framework is applied to analyze the extent this is consistent with the emerging case study findings.

METHODOLOGY

Globalization and the rapid increase in competition have made companies focus more on design departments, which are the first step of production. Because design decisions affect 70 percent of total product costs. It is important to know the costs in this context. For an effective costing system, enough detailed information should be obtained from production processes and alternative costs. Further cost information is needed at the production design stage, before implementation. Normally, a costing analysis is only possible for mass production, after the completion of tooling and instrumentation. But with Activity-Based Costing, it is possible to do an effective costing analysis before production starts (Yuksel Pazarceviren & Celayir, 2014). The traditional approach has always been to determine the cost of the product after it has been manufactured. In today's challenging business culture, it needs ensuring quality at the designed level of costs. Economic and technical estimates in feasibility studies for the manufacturing of a new product must be thoroughly analyzed long before production. As a result of these analyses, costs must be calculated before starting production. It is important to develop a plan for managing pre-production efforts within the scope of this aim. Such a plan has to be integrated with the Strategic Management Process. Focusing on costly elements is an important subject that must be considered in the development of a product design. Indeed, the direct manufacturing cost of a product is shaped mostly at the stage of product design. Approximately 70-80% of all costs are determined in relation to the product in the product development process. Today, in the intense and constantly effect carbon markets, it is not possible to design a product without taking cost considerations into account from the very beginning (Maher AL-Khasawneh et al., 2019).

Research Design

The purpose of this research consists of clarifying how and why the developmental mechanism of cost control called Specification-Based Costing worked, and how it connected to the costing target intended by Target Costing. The importance of cost management at the Development and Design stages of new products has been understood for some time. In the 1980s, companies in the U.S. and Europe introduced methodologies with a view to cost effectiveness at these stages such as Design-to-Cost and Target Costing, doing so a step ahead of the Japanese companies. The rise in the U.S. of Japanese competition, together with globalization, has also heightened the interest in cost management at these stages on the part of management accounting and other disciplines. Despite this, promotion of both academic research and field research in this area is much more advanced in Engineering than in Management Accounting or its counterpart in Japan. Meanwhile, study on the costing methodologies has been conducted to pursue effectiveness, focusing mainly on cost structure, target derivation and cost estimation techniques. Though it is said that the knowledge creation activities in each of the participants are the essence of the target costing activities, this point is approached from unique the Knowledge Chain Model method. It is shown that in fact the knowledge creation activities concerning costing have latent possibilities of development in new creative knowledge and important implications are derived from examples of field study (Nobumasa, 2018). Of the Toyota group parts suppliers, this research was carried out in two suppliers with different policies, with neither of which Toyota seemed totally satisfied. At a die-cast parts supplier, this research was conducted during the cutting process mold design stage of a newly developed product; the quotation was three times over target; the end result was that, as cost analysis raw cost data were acquired, costing improvement proposals were

put forward and costs were successfully reduced. At the same time, it was shown that on the Toyota side there was a fivefold principle concerning what should not be explained to the supplier. At a plastic parts supplier, with a one-year protracted dispute over difference between the initial cost condition explanation data and the challenge estimate, it was found that with it being acknowledged that the challenge estimate was based on real data, the cause of the difference was ascribed to previously unexplained assumptions on the services the molding machine manufacturer would render the supplier. Despite what some refer to in the case study design field research as the "contamination" of the researcher's participation effect, the above would seem to argue that there is a need to reexamine from the outset the scheme of conventional theoretical research on Target Costing and to construct new theories (Maher AL-Khasawneh et al., 2019).

Data Collection Techniques

In order to improve the ability to identify specification-based costing with target costing and its implementation. Data were collected with the help of flexibly designed questionnaires that include open-ended questions, dichotomous format questions, rank order and 5-point Likert scale format questions (hakim Mustafa Joudeh et al., 2016). These questions were answered by people who have the most accurate and up-to-date information about the projects.

In addition, semi-structured in-depth interviews were conducted with the architects most experienced in specifying target costs. Considering the scope of data collection and the overall research project timeline, it was decided to conduct a detailed qualitative content analysis of five interviews. Interviews were structured around the topics of project characteristics, target cost calculations, project performances, benchmarking, and incentives.

Finally, both data collection techniques were supplemented with the collection of secondary data including annual and project-specific reports. These materials contains aggregated and detailed information on target costs, other accumulated costs, and other performance measures in each project.

Analysis Methods

Model-based costing is an advanced method that enables product cost calculation before the product is manufactured. In the simplest terms, it is a technique that aims to make a profit by determining target prices in the production and pricing of products that have a competitive advantage. In other words, product targets that will provide competitive advantage in the market are determined by target costing and producing products in this direction is called product design. The calculation of the target cost of a product or service consists of providing all the definitions, quantity of material, process, work schedule, and cost lists and recording these data in the accounting program or other software and running the necessary reports. Costing operations are carried out by the accounting department in certain periods, or by those who are experts in the field since they are an important part of the production process, the benefits to be provided are high, the wrong calculations can be disastrous (Yuksel Pazarceviren & Celayir, 2014).

The activities to be carried out within the facility should be given great importance for the target cost calculation. The obtained; Calculation of the target cost information matrix by identifying the costs of all activities, Calculation of cost drivers and midterm drivers according to the cost drivers as a factor affecting the cost compared to the indirect costs, Indirect costs are disbursed according to the consumption rates of the cost drivers. Despite its implementation in small businesses, it is most common in the manufacturing sector, in large-scale businesses, and in sectors that need to maintain a competitive advantage in the market such as the automotive and white goods sector. On the other hand, today, it is seen that the use of target costing is increasing in sectors such as construction and services. With it, success is not temporary or short term, so the basis for success must be strong. Successful enterprises were based on a strong foundation thanks to their cost-effective product design infrastructure that they applied beyond the basic; Additional measures were taken to ensure product robustness.

Specification-Based Costing

Price suffered by the enterprise from the competitor in the scope of product sales has different severity. When this price decreases, the manufacturer makes a loss for that product or production began with that price. Especially, the costs of the companies that started production with low price, inclusive of raw, material, intermediary materials, energy, labor, and outsourcing, increase for the next rounds. However, if this reduced price is still continued during the

production phase, it means that the companies have suffered competition due to low price. In this situation either the companies try to produce with reduced costs, or an opportunity is sought to stop or decrease the said production. Companies obtaining full benefit of production from the manufactured products would try to realize the both. The opportunity for competitive enterprise is seen to decrease its production costs (Yuksel Pazarceviren & Celayir, 2014). At this stage, enterprise applies every kind of instruments in order to decrease its product costs to the possible extent and benefit of the present know-how and information for this purpose.

Product costs must be decreased and also there must be a difference with competitive enterprise. At this point, a new concept that must be considered during the design period of the product emerged under the name of a specification-based costing in the product cost analysis. The concept of specification-based costing has emerged from the approach of the activity-based costing method that emerged in the 1980s and has evolved into a model proposal based on an existing target costing method. This study aims to enable the manufacturer to model the target costing from the price to be determined by the competitor with the target costing-based activity-based costing model based on costing tables (Yuksel Pazarceviren & Dede, 2015). The literature review section of the study is followed by the description of the target costing, activity-based costing, activity-based budgeting method, target costing-based activity-based costing model and hypothesis of the study. Setup and calculated data of the model with costing tables are considered in the methodology section. The conclusion provides important implications of this research.

Principles of Specification-Based Costing

This study discusses target costing techniques which will remove the traditional applications today and aims to analyze them. ABC will be proposed to use in target costing models. Target Costing based on ABC will provide a competitive advantage to the business. As a result, businesses will maximize customer, market and profit share through effective cost management.

Non-profitability of businesses and economic fluctuations trigger fluctuations in markets. Therefore, businesses must provide financially solid structures to protect their place in the industry. Because the majority of businesses that lose money go bankrupt or are forced to sell. Therefore, businesses have turned to cost reduction. In competitive conditions today, reducing costs some more have become indispensable. Designing products with functions that users demand in various economical cost, providing required customer satisfaction and keeping expenses less than the desired financial level are the producer's basic challenges. In other respects; The demand of customers for high quality products, the limitation of prices that customers will pay for this in the framework of market conditions, the rapid and responsible production and the significant changes in the performance criteria required by the competitive conditions had an increasing effect on the businesses. In the current conditions of the internal and external environment of the factors that qualify inertia as a result of quickly shaped an intense rivalry, led companies to question their nature of operation. Recent changes due to global competition of businesses and technological advancements lead to innovations in the use of financial and non-financial informations (Yuksel Pazarceviren & Dede, 2015). Where the business is going, what they should do and where they should invest this thing are some of the vital questions that should be answered. As a result, a strategy must be developed. The most important part of the strategy to be developed has to set target cost (Yuksel Pazarceviren & Celayir, 2014). Setting target cost elements, the development of activity-based costing and determine which costs should be adopted, profit expectations, price determination policies, sales forecasts, competitor performance status, and development of the productivity analysis. Appropriate strategies for the defined elements are part of the target costing system.

Benefits and Challenges

Target costing provides guidance on how to control and reduce costs in a corporate environment. There are mainly two common approaches under the concept of target costing; specification-based costing and cost-plus pricing. Specification-based costing models aim at achieving a competitive advantage in trading industry by enhancing profitability and front line professionals can price their products more effectively (Yuksel Pazarceviren & Celayir, 2014). A mediation role of a target costing approach is tested and it is currently used in sense of the efforts devoted to create overall cost estimates at the planning and early processes of companies in the relevant industry. Additionally, a target costing approach is suggested to improve competitive advantage for project

management companies in construction industry by achieving a smarter market-based fee rate through four values of target costing.

The tough competition in the domestic market requires ever more competitiveness in terms of reducing the costs of production. By managing the quality cost more effectively and rationally, therefore, business entities can achieve improvement in their businesses and sustain their profitability. To reach this end, the study pursues the efforts to streamline integration of the two cost management systems; specification-based costing (SBC) as an independent variable and target costing (TC) as a mediating variable, with regard to competitive advantage consisting of cost leadership and strategic advantage.

Case Studies

Costing is the allocation of resources through a system of several methodologies or techniques. Costing is developed to support a company, profit, or industry. Therefore this paper investigates how organizations allocate resources, or in other term, the costing system. This research is done to propose a new costing system that is integration of specification-based costing and target costing. The case studies, strengths, weaknesses, opportunities, threats, strength, weaknesses, 4 factors that influence costing system selection by companies, and 17 advantages and disadvantages of target costing as an advance of a costing system are further applied. The SWOT analysis reveals that integration of specification-based costing and target costing should be performed by organizations in several industries. Furthermore, organizations are suggested to identify or detect a costing system through the 4 decision factors. It is found that target costing is more relevant to assist small, medium, or large-scale enterprises to launch a costing system as it has 17 advantages and just 6 drawbacks that can be viewed as a comparison to other costing systems.

Target Costing

Target Costing methodology, it can be adopted in accordance with the rules of the method, which is directly related to generating competitive advantage. In this way, sustainable advantage can be ensured by the firm. In this work, it is also aimed to integrate Costing-Based Costing (SBC) and TC methodology. This will provide the automation of the product design stage of TC with the logic of SBC. For this purpose, a software infrastructure will be developed that converts the product design into virtual assemblies and that automatically calculates the cost of the manufactured product according to the given components, and thus enables the target cost and target profit margins to be determined according to the expected unit sales amount.

After analyzing the study on the design of a Life-Cycle Costing (LCC) system, a novel methodology is developed that couples TC and the Activity-Based Costing (ABC) system. The proposed integrated approach is called a life-cycle model that calculates market-based target costs for sub-assemblies in both purchasing and in-house manufacturing strategies. Thus, manufacturing performance comparison is achieved through calculated deviation indexes considering real production data. For the implementation of the proposed methodology, a computer program is developed by utilizing object-oriented programming. With this new system, cost engineers of a multi-function manufacturing company can evaluate the production cost structure of a potential product at the design stage of that product, especially focusing on cost transparency both for in-house and outsourced manufactured sub-assemblies.

Target costing (TC) is a competitive measure to manage a product's development, production, and customer service processes. The pricing strategy commonly relies on three steps. First, a profit margin is determined. Next, market research and possible market price expectations are explored. Finally, target costing is performed for cross-functional product development. Target costing is an approach to product design with the objective of achieving a predetermined cost. If a target cost cannot be attained, the company, based on product competition priorities, decides whether to continue with the product or postpone it. Target costing first defined by Toyota encourages price management considered to be the idea of an uncompromising implementation commitment significantly affecting competitive advantage. Target costing is benchmarked to provide for the allocation of product cost and simulations that can lead to a targeted cost (Yuksel Pazarceviren & Dede, 2015). comprehensive and effective material is aimed packaging, and eventually to develop a new model-based TC and activities in the actual realization of this application-based costing. Beside the suggestion, respectively, the method is based on the establishment of the target cost and target costing in order to use also The study was prepared as a result of processing the current state review. Thus, this study also provides a guide for companies on the implementation of target costing with steps. The

principal is, first of all, estimated the target costs with traditional way, and activities in actual production design as a result to calculate target costs and costing target cost (Yuksel Pazarceviren & Celayir, 2014).

Principles of Target Costing

Target costing emerged in Japan in the early 1970s as a way of gaining competitive advantage in the context of fierce global competition. It is currently employed by some companies in America and Britain. A move toward target costing has been observed in the motor, electronics, and banking sectors in Turkey. Although still at the experimental stage in Turkey, it is envisaged that the system will be adopted more widely in the future. Target costing can be defined as a corporate strategy employed in planning and controlling costs to achieve predetermined market targets in the life cycle of a product, from initial design through to research, development, production, and after-sales service. Market variables are the main input in the formation of target costing, which highlights both cost control and cost reduction. It is based on the idea that cost reductions in target prices and cost planning at the design and development stage provide an important competitive advantage. Target costs define constraints within which new products or projects are expected to function. Target costing is a system aimed at profit protection since it tries to maximise profit under competitive market constraints of price. Target costing is best used at the product development stage. It is difficult, although not impossible, to change the cost structure of a product already in the market without damaging its competitiveness. For the same reason, it is impossible to establish a target cost for a product/project already in the market. Despite this, it could be implemented for product improvements. Commentators suggest that small firms and sectors in search of high-added value products and industries can benefit from target costing. Targeting to maintain additional financial constraints is an important condition of target costing implementation. It is stressed that in the long-term the dealer and customer can both gain and lose as a result of competitive pricing. It is suggested that all industrialists should play a part in shaping policies in such a way as the creation of long-term economic costs for the market can be avoided. Targeting to make flow the production process in a simpler, more practical and more efficient way The relationship between ABC and target costing is clear; the most important factors which should be reduced in the costing of the structure of the prime cost required for the new product are: Reduction of the data part of the working process in order to put a production plan in place, i.e. working part of the time cost, the creation of the part due to the standart time and standart time cost of the work, direct material consumption relying on how much of the product to be used in the standart, the unit labor cost of the direct worker engaged in the product, the part consumed by the standart and the part responsible for the standart, Royalties in terms of keeping only the standards work performed outside the company and the company; The codereductionpayer of the entire cost plethora of additional part in order to put forward the standart structure in enterprise overhead costs; the only method can be applied to the data which is generated as a result of this effort to ABG at; the only method can be applied to the data which is generated as a result of this effort to ABG at. Given how the cost will do the operating after about a "standard cost of developing a single product to be produced," said standardization of overtime cost-effective time production process to be followed without interruption sitelendirmeloy closing and desired goal can be achieved, it can be seen that the mass costing in accordance with TC merit are submitted to the standartsworking" concept until the end of the product a helpful proposal draft model. Do not forget that the market cost of the product planned a suggestion "target cost model based on ABC" with a small manufacturer can be a standout for the new production. (Yuksel Pazarceviren & Dede, 2015)

Implementation Strategies

The Implementation Process: Determine Target Costing Project: The products for target costing or the parts constituting the product group are identified. The time is determined for the project. Formation of the Cross-functional Team: The team, which has representatives from all related groups, is established. The team can be internal, customer and vendor. Customer and vendor can also be represented as sub-management. Determining the Target Cost: The maximum cost the product can afford is determined in order to ensure the company profit. If the products are aimed to be sold in the domestic/international market, the market selling price is effective when determined. Target cost; it is the difference between the target profitability rate and the expected selling price, considering the product group competition rate, the expected customer purchasing capacity and the increase in

productivity and efficiency in a suitable period. If it is requested by the customers or the sector is critical, the secondary and down products are accepted and the profitability is improved. Creating Pricing Mechanism and Win-Win Approach: The team members are informed about the studies and the resistance of the staff is given. Cost, quality, design and manufacturing reviews have been made. The costing process will be facilitated by the simplification and standardization of the design, the price information related to the material is requested, the material list and weight is demanded, the mechanical drawing is requested. Target price should be controlled in the process of determining the sale price, necessary working conditions should be created for the necessary negotiation with the vendors for cost reduction, and Cost model which will make the explanation of cost in a transparent way should be prepared. Cost Erosion Analysis: Target costs are shared with vendors. The deviations of the vendors should be shown with color coding, balance erosion should be looked at. Studies are shared with vendors and the most accurate cost reduction technique is applied. Realization of Cost Reduction Studies: The target cost of each component and base assembly, the introduction module or the concept product is analyzed and process-oriented cost goals are determined. Dependent and independent components are identified, cost models are created. Reducing the target cost of the dependent component is targeted. Independent components should be analyzed and the cost difference from similar components should be determined. A balance erosion should be paid. Setting Cost Target for Senior Management and Preparation of Actual-Cost Relationship: Determining the cost of the product with the target bottom-up, the target cost deducting the expected cost of the basic component, the verification of the cost of the basic component by means of the working conditions has been created in cooperation with the suppliers, and this cost should be shared with the related suppliers. Efforts to reduce the remaining cost are explained by its real price. Compliance with the target cost is probed. Understanding reluctance must be shown with facts. Product consumption cost should be calculated considering the portion of the product, ease of production, and number of products using the part. Formation of Innovation Teams: It is stated that the product or module can be redesigned after the material standardizations are completed and the high principle price is seen so as not to reach the targeted cost level. The redesign of the product affects the planned series decrease and the life of the product should not take longer than expected.

Integration of Costing Approaches

The cost has an essential role in economic choices, since it is linked with the productive technique and to the events happened inside the enterprise. The technique of management control is a manner of the costs, which works with coordination, planning, and productivity. In every business organization, the specification-based costing has been quality control that has become important for every aspect. Specification-based costing is the discipline of quantifying the costs on production to assess adequacy of quality procedures. Business organization's achievement is largely determined by the capability of getting the reliance of cost information. In the last 20 years, the business organization's competitiveness has faced considerably greater challenges (Yuksel Pazarceviren & Celayir, 2014). It was indicated that the business organization is really required the accurate cost information for the prevision of future pricing and control over the product cost. In this atmosphere, business organization has adopted a target costing. The target costing is the discipline of profitability analyzing of the projected products necessitating design and the cost controlling the parameter to achieve the targeted profit. Later projected product development was completed; the target profitability product may not be released with a competitive price through the cost division. In target costing's perspective it is therefore important to test the compatibility of the targeted cost (ENGH et al., 2018). In the other side, the enterprises are expected to capable of obtaining the profit that has been planned and this is required the complete strategic actions.

The system established will blend the use of the ISO procedures and computerized costing procedures to handle and distribute data. The establishment of these computers and procedures guarantees that it will provide information regarding a product's cost to the different functional area and management. The focus will be an optimization chain as many different processes. The proposed change can be quite random and dependent on the employee's judgement and so will profits change. In addition, a lot of the management will actively make choices, depending on the output of what they are given. This was determined by situational related to constraints concerning specifications, consumable expensive resources, planning, energy, and the other. Though is

where a systematic approach will be described to these problems, which is based on manipulation of different components which will account for the possible interactions. This research will also include the suitable examples to illustrate. Every business that produced goods uses the form of product costing. This is used as a planning, tracking, and control method. It is necessary for a business to make sure that the cost applied to each product or for a customer order is the unswerving costs have been incurred in regard to that product.

Synergies between Approaches

While each of the above-mentioned cost management methodologies is of great importance, the fruitful harmonization of these methods may bring about a significant competitive advantage. This chapter specifically focuses on the harmonization of SBP and TC, providing a much-discussed issue in the specialized literature. Following the structure of the existing literatures, the causes of hybridization of SBP and TC are investigated and a conceptual model is developed. After that, the methodology of implementation is explained and the potential benefits of the simultaneous use of both methods for companies have been expressed (Yuksel Pazarceviren & Dede, 2015). Finally, to uncover the potential obstacles in the implementation of models, a case analysis will be presented. Large, middle-sized, and especially small-sized companies should make accurate and effective management decisions on the costs to survive in today's globalized, competitive, and complex business environment (Yuksel Pazarceviren & Celayir, 2014). To make such decisions that will ensure the company profitability, cost accounting systems and methods are of utmost importance. Efforts to decrease the costs and increase the profits by determining the costs of goods or services have been ongoing since the industrial revolution in the 18th century, but since the 1960s, a noticeable intensification has been observed in these efforts.

The type of industry, political and economic environment, and the organizational structure of the company impose changes in the cost management techniques. The cost management methods, SBP and TC, are developed analytically at first, and then are discussed in regard to their position in the extant literature. Finally, the synergy among SBP and TC is explored. Since large companies that have high competitiveness are suppressed by market conditions, the more intensified use of the cost management techniques by the small-sized companies is required. This study will provide small-sized companies with a model to enable them to compete with large companies. Target costing (TC), as a management accounting system, can be used as a bridge between the SBP and Quality Management Systems (QMS). The temperature of the food stored inside the industrial chillers is a critical factor that should be carefully managed. In most countries, checking the temperature of food is controlled by the food quality regulations imposed by the ministry of health of the respective country.

Framework for Integration

This section presents a framework that is designed to integrate specification based costing and target costing. The integration aim is to provide competitive advantage through a more technically rigorous approach to setting cost targets for design-to-cost purposes. The approach requires a detailed understanding of cost trade-offs within the value chains of both firms and suppliers. Enforcement of these trade-offs must be maintained continuously across changes in target and progress payments to prevent cost shifting.

The basic framework for supporting this approach involves the following components: (1) A most capable supplier selection process based on the ability of suppliers to consistently provide competitive cost, time, quality, technology, and horizontal transfer and sharing. (2) A greater supplier involvement in product development and productivity measurement assistance. (3) A product characteristic modeling technique for predicting cost as a function of a product's most granular technical parameters. Cost trade-offs from prototype testing are used to build these relationships. Manufacturer and supplier maintenance of cost characteristic databases support the continuous re-estimation of part cost using the models. (4) A method for translating these part cost bounds to product level cost bounds. (5) Each manufacturer's definition and continuous maintenance of exactly what costs are enforceable on which tier(s) of each product's value chain. This includes multiple value chains for like components. (6) Part level cost measurement and cost data concealment among the manufacturers and suppliers. Cost concealment is achieved through Agreement on the supplier sign-on to common use of costing software, support of strong statement of work contracts specifying allowable cost data communication and part cost measurement

techniques, and frequent on-site audits.

Practical Considerations

Manufacturer and supplier companies operating in Defense Industry are obliged with the contracts to submit the bids according to specifications that are determined by the customer. In the case of contracts of mass products or commercial goods, a company can obtain some quotations from the suppliers and has an idea about the prices and delivery schedule. However, unlike others, the defense industry contracts are executed on the basis of cost contracts and no quotation is received for the inputs. This may lead companies to some serious bid errors. Besides, in many cases the bidders may declare prices below the cost of the product, in case of a competitive environment. This situation clearly underlines the need of a cost evaluation as a complement of technical evaluation. After all, the achievement of the companies mostly depends on the accuracy of the cost information determined. In this study, a sample application is explained integrating the COSTART model, that is based on ABC, with the Target Costing (TC) method, to be used in determination of target cost. Besides the sample cost data used in applying method have been collected from real life example, the detailed implementation processes were omitted for the sake of understanding (Yuksel Pazarceviren & Celayir, 2014).

Impact on Competitive Advantage

Target Costing emerged as a systematic production development and cost management strategy in the late 1980s. This method is widely used in Europe, the United States and especially in Japan and Brazil. As well as many two-stage productions in many firms, high production costs in the transformation process from semi-finish product to finish product have forced them in the face of foreign competition. This situation increases the importance of designing products that provide the desired usage value to the customer at the lowest cost.

Improving traditional costing techniques can't provide the expected benefit in cost control function. Target Costing approach is expected to provide a basis for design-to-cost studies besides activity-based costing models, which are used in cost management through activities of cost. Vehicles, home appliances, and ready-to-wear industries, a large number of two-stage production is observed in companies. Press operations are sold by specialized firms, and roll-forming, soldering or semi-finish cabinet production is transported. Target costing is a cost planning and reduction system that fits more integrated to the general decision of the company. At the stage of market research and needs, target costing acts as a mediator in directing research and development activities. Target costing works more selectively on product families (Yuksel Pazarceviren & Dede, 2015). Target costing activities are highly special for newly developing products or semi-finish import replacement productions. Establishment of a general cost reduction consciousness in the establishment with the works carried out is foreseen at the end of a certain time. The reduction of costs at the factory and supplying of the semi-finished product at the desired total cost occurs as a prime cause. There is a market demand for low price products that shape most of the Turkish economy. With the difficulties experienced in production, it seems inevitable to make design-to-cost studies essential to break the vicious circle. The main purpose of the firms is to determine the market price of the product with a defined quality and to design the product to be produced at the desired profit within this cost limit. In the process of designing a product within a target cost, the costs that can be changed are the raw material costs, semi-products or semi-finished products, the costs of the processes that are carried out in this semi-product, the design and mould costs of the products. Investments in production systems on a limited model are expected to be made, and drawing investments are expected for the roll-forming of the semi-finished product circuit front panel body group. The target cost negotiation is aimed to be made effectively with all the precautions. Calculation of the target cost should know very well cost account. After the semi-fin products are taken from outside with a market examination, cost analysis of the existing semi-fin circuit front panel body group is performed. Preparation of the ABC model can provide the basis for the most convenient bargaining process. Alternative scenarios can be created with the confidence created and the justification of the calculations. It can be prevented that the cost buildup is taken directly from the investment. Post-investment attention was overshadowed the cost and efficiency delight. How to reach the figures should better be prepared and calculated. Competitive investment conditions with domestic firms can be offered to suppliers. With the work to be done, firstly the most effective part of the cost is expected in this way; cost decrease negotiation should start from the beginning. According to this, it is necessary to give the same sensitivity and importance to the circuit front

panel body group. This part should also be included in the scope of the work. Subsequent transportation costs should be calculated separately and be sure of the benefits of supplying semi-finished product from outside. Again, investment is not an immediate return (Yuksel Pazarceviren & Celayir, 2014). Post-investment savings cannot be said to be permanently due to price fluctuations, technological changes, quality fluctuations and changes.

Cost Leadership Strategy

Attaining cost leadership typically requires aggressive construction of efficient scale facilities and vigorous pursuit of cost reductions through experience, tight cost and overhead control, and cost minimization in areas like R&D, service, and advertising (Kowo et al., 2018). To achieve an overall cost leadership position, low cost relative to competitors is essential. Early movers and technological innovators can lock in cost advantages and deter entry; thus, no industry is immune to the possibility of cost leadership. There are, nevertheless, some careers susceptible to cost or price war and a much larger number for which cost leadership is feasible but not wise. Firms with low costs can still earn returns after their competitors have competed away their profits. And since excess returns are based on top-of the-between-competitors scale economies, durable, exploitable cost advantages are more likely to give rise to a sustainable advantage. There are six main sources of cost advantages for firms that successfully adopt cost leadership. They are: Size differences and economies of scale, experience differences and learning-curve economies, differential low-cost access to productive inputs, technological advantages independent of scale, pioneering or early-mover advantages, and policy choices. Sustainable cost leadership is possible in those careers for which the relevant sources of cost reductions are likely to be both durable and sizable.

The ability of a valuable cost leadership strategy to create a sustainable competitive advantage is conditional upon the strategy being rare and costly to imitate. Sources of cost advantage are classified into likely-to-be-rare and less-likely-to-be-rare categories. Each source also comes in two types: cost drivers the firm can control and those it cannot. Hence, Net Deliverable Benefit is a continuum and not a black and white issue. This highlights the extreme value to firms of accurately evaluating their cost leadership potential.

Differentiation Strategy

A firm must have a most efficient cost management model in order to be preferred in a competitive environment. Demand for services of a company that has better quality products increases, while market share shrinks for companies producing at higher costs to get worth for the services. Therefore, in the determination of production strategies, cost management and pricing, indicators of market conditions and desired market share should be considered. Prudent companies implementing a range of strategies provide their firms with some competitive advantage by improving the decisions on the cost price of their products. It may be possible to obtain some opinion on the cost by using specification-based costing and then it may be possible to have a competitive advantage by taking advantage of better specification-based costing. It can also get an opportunity to lower the specified costs at this stage. Proposal of a model is presented in this respect. This model is designed to integrate the specification-based costing method with the target costing system as an add-on to the existing system.

There are three options available in the market approach to obtain the internal cost and price opinion of a new project or for the making of a new product. The comparability rates are very low in this respect for conventional costing methods, so that there is a possibility of damaging the competition. Target costing has an important role in the products' variable costing costs before products marketing. However, losses due to this method can be determined and a common product range should not be entered throughout the company. It is also possible to be sunder from the failure to make the desired speculation-based costing by comparing similar jobs. Proposed model, which is an add-on model cost-effective for firms using activity-based costing, is not an option that is directly opposed to the existing systems of firms. System overrides are carried out by obtaining information through the integration of systems through their own programs. Proposed model is aimed to provide firms producing innovative products with a competitive advantage by integrating target costing systems with cost-based cost calculation methods. There are two primary information and 17 sub-information groupings used in product filtering for this purpose.

Market Positioning

With the pace of globalization accelerating, the fierce development of economy and technology in the world

solidifies competitive conditions in enterprises (Yuksel Pazarceviren & Celayir, 2014). In this competitive environment, companies that aim to survive and grow and to attain a sustainable competitive advantage must attempt to create new and innovative strategies. Cost has lost its importance in the past and many researchers, analysts, and managers were under the influence of J. A. Brimson's emphasis and expression that "in the future, you will need to implement strategies between cost positions." Additionally, with strategies alone, it is impossible to strengthen competitive situation; obligations are to be supplemented in the implementation phase (Yuksel Pazarceviren & Dede, 2015).

The relationship between strategies and products is very close. Thus, in many types of research time-to-time, it is mentioned that the corporations' basic strategy must be shaped specifically about the product. This strategy is defined on the terms of the quality level of the product, price setup, such as global or local marketing. The TC model, which proposed in this study, is implemented between the determination of product sales price for the desired level in the determined market position with the help of information from the customers and the termination of the target cost of the product in accordance with the target profit margin, which is shown in the figure. Also, this implementation begins before the product is targeted to be sold out, and generally continues even after the product starts to be sold. The TC application is launched with the preliminary process that determines the market positioning.

References

The purpose of this study is to create a model based on activity-based costing in the processes of determining target cost and realizing target costing.

Practical Aspect

1. An Introductory Overview of Al-Narjis Company, the Research Sample

Al-Narjis Company is one of the Iraqi private sector companies established after 2003 in Basra Governorate. A group of engineers with various engineering, construction, and service specialties fully owns the company. The company strives to provide production using the latest technologies and the highest levels of quality. Companies Law issued the company's incorporation contract No. (21) of 1997 (as amended). The company was registered

Basic informations related to Target Costing, the purpose of the method, the principles and the implementation process are explained initially in the study. Following this, basic informations regarding activity-based costing and activity-based budgeting are presented, and their correlation to target costing is mentioned. Proposal of target cost model based on activity-based costing is presented at the final section. Indirect cost allocation in accordance with the ABC is used as a base for proposing the model. An activity is of work that consumes resources.

Recent changes due to global competition of businesses and technological advancements lead to innovations in the use of financial and non-financial informations, and the accounting became the most important tool of business management. Increases in costs especially after the industrial revolution, serious decreases in product prices, and prominent global competition have incapacitated conventional management and cost accounting methods. As a result of this, methods such as Management, Time-Based Management, Reengineering, Flexible Production Systems, Activity-based Costing have been developed; target costing is also emerged as a part of this process. In this method, operations are oriented with respect to customer, intensity on production design is highly risen and it extends to the whole life cycle of the product. The starting point of the target costing is strategic management consistent with all business activities in an ever-changing, ever-growing competition environment. Target costing is a product development strategy that is concentrated on customer expectations and new opportunities in the market, and it is identified as management process of strategical profit and cost. Target cost management is regarded as an activity that aims to reduce the costs of the product during its whole life cycle and to satisfy customer requests such as rapidity, quality and reliability.

with the Companies Registrar under the name (Al-Narjis Contracting, General Trading, Design, and Project Management Limited Liability), with multiple activities, and with incorporation certificate number (1709) dated November 5, 2005, with a capital of (15,000,000,000) fifteen billion Iraqi dinars. Al-Narjis Company is one of the Iraqi companies that has been involved in business and competition since 2005, especially after its capital was increased to 25,000,000,000 (twenty-five billion Iraqi dinars). In addition to its in-kind capital, including machinery, equipment, and logistical infrastructure, it owns other companies specializing in contracting,

mechanical, construction, and electrical works. Among these companies is Al-Narjis Pipes Limited Liability Company (the study sample), as well as factories and other companies owned by the parent company (Al-Narjis Company).

The Costing System Used by the Company

Al-Narjis Pipes Production Company relies on the electronic accounting program Mega Cash to manage its accounts, including recording, documenting, processing, and reporting its financial and cost transactions through the unified accounting system. Based on this program, the company's accounts are divided into four main accounts:

Directory Number	Account Name
1	Assets
2	Liabilities and Equity
3	Expenses
4	Revenues

Under this program, the company records and tabulates its cost data within the expense account. This account includes the recording and tabulation of all expenses incurred by the company. Accordingly, production costs are calculated using the total cost method to determine the product cost. The profit margin determined by the company's management is then added to this method for pricing the product. Product cost is determined by adding the costs of raw materials and other costs, which include all monthly expenses. Other costs are charged to the product.

Production capacity of the UPVC pipe product

Actual ÷ Planned	Actual ÷ Available	Actual ÷ Design	Actual production	planned energy	available energy	Design energy	Monthly periods for the year 2022
0.4	0.38	0.25	30	75	80	120	31\1\2022
0.54	0.48	0.32	38	70	80	120	2\2022
0	0	0	0	65	80	120	3\2022
0.32	0.26	0.18	21	60	80	120	4\2022
0.29	0.21	0.14	17	58	80	120	5\2022
0.24	0.2	0.13	16	68	80	120	30\6\2022
0.3	0.25	0.17					Average energy utilization rates %

The researcher notes from Table (20) that the company's energy consumption is not significantly utilised for the UPVC pipe product (10 bar \\ 1.5 mm \\ 25 mm). This is despite the very large design capacity available, in addition to the available energy, which was not utilised to the required extent, as the average utilisation rate did not exceed (17%, 25%), which helps manage costs, especially fixed costs, more efficiently and effectively. Actual production is also weak, as the actual average production did not

exceed 30% of the planned level, given the market's need for this product.

Company Sales of UPVC Pipes

Average sales volume and revenue ratio	Revenue %	Sales volume %	Actual revenue (in dollars)	Actual selling price per ton (in dollars)	Actual sales quantity (tons)	Planned revenue (in dollars)	Planned selling price per ton (in US dollars)	Planned sales quantity (tons)	Monthly periods for 2022
0.19	0.19	0.2	2398	$ 35,970	16	$ 187,500	2500	75	January 22
0.2	0.2	0.23	2398	$ 38,368	15	$ 175,000	2500	70	February 22
0.18	0.15	0.18	2398	$ 28,776	12	$ 162,500	2500	65	March 22
0.19	0.18	0.19	2398	$ 31,174	10	$ 170,000	2500	68	April 22
0.14	0.14	0.14	2398	$ 23,980	8	$ 170,000	2500	68	May 22
0.19	0.18	0.13	2398	$ 21,582	14	$ 137,500	2500	55	June 22

Table (21) reveals to the researcher that the actual sales volume and revenues for the UPVC pipe product (25 mm\\1.5 mm\\10 bar) are fluctuating and inconsistent with what was planned. They did not exceed 50% of the planned sales volume and revenues. The average ratio between actual and planned sales volumes and revenues, according to the periods indicated in the table above, was (19% \\18%). This is considered a low percentage compared to what the company seeks to achieve in order to expand and acquire the largest possible market share to achieve competitive and financial stability. Several reasons can be identified for the discrepancy between the planned and actual sales volumes, prices, and revenues for the UPVC pipe product (25 mm\\1.5 mm\\10 bar), including the in terms of specifications and pricing.

following:

- Increased competition in the market for these products from both local and imported products.
- High selling prices due to high costs and the lack of market research prior to pricing the product.
- The company's marketing and promotion capabilities are weak, due to the lack of a sound marketing policy, resulting in a lack of marketing, persuasion, and lending channels. This is in addition to the inflexibility of the mechanism by which the company presents and distributes this product to customers.
- The company's inability to take customer feedback into account when planning and designing the product,

Materials and production stages associated with each UPVC pipe product specification

Design	Durability (Thickness, Durability)	Size (Diameter, Weight)	Materials	N
	30%	70%	Al Ghadeer Resin (PVC)	1

30%	40%	30%	Calcium Carbonate	2
15%	65%	20%	Heat Stabilizer	3
20%	10%	10%	Stearate Acid	4
10%	5%	75%	CPEIM888	5
	50%	50%	Processing	6
	50%	50%	Wax	7
	95%	5%	White Paint (Blooming)	8
		5%	Adhesive Tape	9
	20%	20%	Packaging Materials (Nylon Bags)	10
			Production Activities and Stages	11
		100%	Mixing Stage	1
	20%	80%	Crushing Stage	2
	50%	50%	Extrusion Stage	3
40%	30%	30%	Mould Stage	4
	50%	50%	Cooling Stage	5
		100%	Printing Stage	6
	20%	80%	Cutting Stage	7
	20%	80%	Shaping Stage	8
		100%	Cooling Stage	9
20%	20%	60%	Storage	10
	5%	95%	Full Production Warehouse	11
	50%	50%	Preparation for Customers	12
100%		100%	Al Ghadeer Resin (PVC)	13

Costs associated with the production volume for the size specification for producing one ton of UPVC pipe.

Amount (USD) (5 * 4)	Weighted price	Quantity related to specification	Material binding ratio for each specification	Quantity	Unit of measurement	Raw Materials
$ 952.00	2	476	70%	680	Kg	Vinyl Resin (PVC)
$ 8.64	0.16	54	30%	180	Kg	Calcium Carbonate
$ 10.00	2	5	20%	25	Kg	Heat Stabilizer
$ 5.78	3.85	1.5	15%	10	Kg	Titanium
$ 0.80	4	0.2	10%	2	Kg	Stearate Acid
$ 0.25	5	0.05	5%	1	Kg	CPEIM888

$ 0.25	5	0.05	5%	1	Kg	White Pigment (Flower)
$ 7.50	1.5	5	20%	25	Kg	Packaging Materials (Nylon Bag)
$ 986.00						Total

The time required for activities and production stages to achieve the size specification.

Total time in minutes	Number of workers	Time correlation ratio for each specification	Time required for each activity and production stage (in minutes)	Responsible Department	Production Activities and Stages
17	1	100%	17	Production	Mixing Stage
16	1	80%	20	Production	Crushing Stage
12.5	1	50%	25	Production	Heating Stage (Oven)
36.9	1	30%	123	Production	Mould Stage
4	1	20%	20	Production	Cutting Stage
1.4	1	5%	28	Production	Packaging

Total time/minutes (2 * 3 * 4)	Number of workers	Time correlation ratio for each specification	Time required for each activity and production stage (in minutes)	Responsible Department	Production Activities and Stages
4	1	20%	20	Production	Crusher Stage
12.5	1	50%	25	Production	Heating Stage (Oven)
36.9	1	30%	123	Production	Mould Stage
12.5	1	50%	25	Production	Cooling Stage
4.8	1	20%	24	Production	Drawing Stage
2	1	20%	10	Quality Control	Quality Inspection
72.7					Total

CONCLUSION

Recent changes due to hybrid products and technological variations lead to the formation of new production management and controlling perceptions. Target Costing and Activity-Based Costing appear as originated from this need. The purpose of this study was to criticize the deficiencies of the two systems when applied separately, to make a general evaluation for the advantages of the two systems that may occur in the integration process. Basic information about the combined system is described. In addition, use of the system in a garment company is exemplified. In this example, by determining the activities related to casual clothing and their costs targeting for a magic jacket design to be introduced to the market, target cost can be easily determined and cheaper cost alternatives can be found.

Increases in economic integration after 1996 led to new variations in products. After the 21st century especially, electronic products which have a lot of properties at the same time completely replaced conventional products. As a result of this hybrid product trend, consumer expectations have begun to change. Today, durable products in which varied features can be seen are demanded rather than standard properties. There have been remarkable changes in the products. This new trend led to the formation of a new production concept.

In addition, as a result of developing technology, the design and production phases of the products are separated from each other. In the hybrid product concept, external firms perform all production processes including purchasing and designing. As a result, a greater variation of design and cost occurs. Production companies find it difficult to adapt to this change. Target costing and activity-based costing appear as the most important products of this need. However, companies in the same sector are in the habit of allocating their overhead amount in an approximate manner with traditional methods, and therefore cost determination appears to fluctuate between companies. Today, the product variety which is the driving force of production makes the quality higher and causes new things to enter the market.

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