



COMPATIBILITY BETWEEN THE GREEN TARGET COST AND THE DISJOINTED ANALYSIS AND THEIR ROLE IN IMPROVING PRODUCT QUALITY AND REDUCING COSTS: AN APPLIED STUDY IN AL-DIWANIYAH TIRE FACTORY

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Abstract:

The research aims to demonstrate the importance of compatibility between the green target costing technique and disassembled analysis in order to improve product quality and reduce cost, and to define the importance of disassembled analysis as an effective tool for determining the specifications and design of competing products and how the company develops its products to enter the competitive market with high quality. Green and its role in improving quality and reducing costs and the concept of disjointed analysis, and the importance of compatibility between the green target cost and disjointed analysis and their role in improving quality and reducing costs, The research presented a set of conclusions, including that green target costs are a modern technology for cost management and that its application contributes to linking the basic success factors of the company with the aim of increasing profitability and its ability to compete and survive by maintaining the quality of its products, by following advanced informational methods and techniques such as value analysis, Continuous improvement and disjointed analysis (value engineering), and that there is a similarity in the basic principles of disjointed analysis in most industries, as data is collected for analysis and evaluation, and disjointed analysis is also one of the most important methods that help the company to identify opportunities for product development and reduce costs by evaluating and analyzing competitors' products and knowledge of their specifications in order to reach conclusions about the process that was carried out by means of the manufacture and presentation of those products. The research recommends the need for integration between cost accounting techniques, including green target costing and disjointed analysis, in order to improve both product quality and reduce costs, as a result of the information provided by this compatibility that helps companies manage to achieve their goals.

Keywords: green target cost, disjointed analysis, product quality, reducing costs

1. INTRODUCTION

As a result of the high competition between companies, they have sought to use cost accounting techniques in order to control costs and provide products at the lowest possible cost and with the highest quality in order to meet the requirements of customers, so most of these companies are using green target costing technology in their work because these companies have become obligated to preserve the environment when it manufactures its products. And due to the presence of many competing

companies that offer similar products or are similar in use to the extent of identicalness, It has made companies use the disjointed analysis method in order to study and analyze design principles. Disjointed analysis has contributed to creating great competition between producers throughout history, and contributed to the differentiation between these techniques, so the current research tries to define the advantages and benefits of each of the target cost and disjointed analysis to improve product quality And reduce costs, and the possibility of compatibility between them.



The first topic: research methodology and previous studies

First: Research Methodology:

1- Research problem:

The global markets have witnessed great competition between local and international companies, as the markets have become full of identical and alternative products at different prices and quality. Therefore, the research problem can be formulated through the following questions:

- Do green target cost technologies help in product improvement and cost reduction?
- What is the role of disjointed analysis in reducing costs and improving quality?
- Does the agreement between the green target cost and the disaggregated analysis contribute to improving quality and reducing costs?

2- The importance of research:

The importance of the research lies in how to use cost accounting techniques for cost management, including green target cost and disjointed analysis, in order to reduce or control costs in order to provide products that meet the requirements and desires of customers with high quality and the lowest possible cost.

3- The importance of research:

- Clarify the concept of green target costing technology, its characteristics and importance.
- Introducing the importance of disassembled analysis as an effective tool to determine the specifications and design of competing products and how the company develops its products to enter the competitive market.
- Demonstrating the importance of compatibility between the green target costing technique and the disjointed analysis in order to improve product quality and reduce cost.

4- Research Hypothesis:

The research is based on the main hypothesis that the compatibility between the disjointed analysis and the green target costing technique leads to improving product quality and reducing costs.

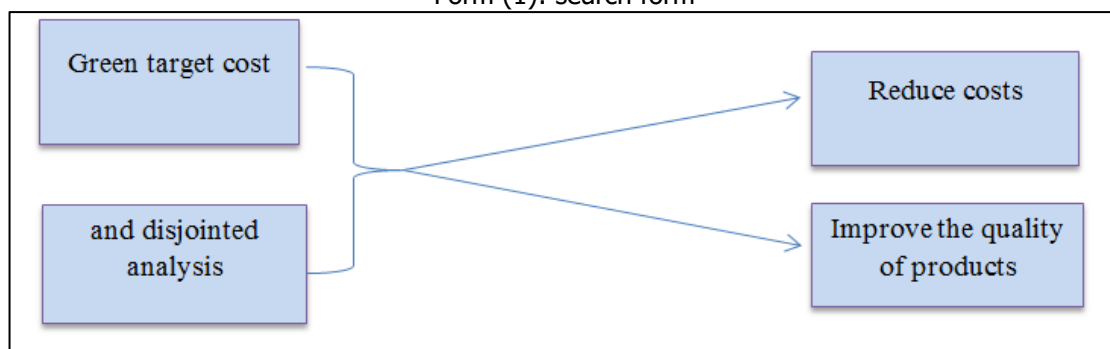
5- Research sample:

The research sample is the factories affiliated to the General Company for Rubber Industries, which is the Diwaniyah tire factory, for the data of the fiscal year 2016.

6- Search form:

The search model can be illustrated through the following figure:

Form (1): search form



Second: Previous Studies:

Previous studies can be explained through the following table:

Schedule (1): Previous studies

No.	The name of the researcher	the year	the title of the study	the summary of the study
1	Soror , Doaa	2020	Integration of green target cost and value engineering to achieve competitive advantage	The aim of the research is to find appropriate solutions to the problems that the economic units suffer from, and one of these problems is the presence of a large number of competing products in addition to the environmental problems associated with the product, as well as seeking to use modern



				cost technologies that have been directed recently to serve environmental issues, which are represented by the green target cost method as well. On value engineering and striving to provide green products suitable for customers, the research concluded that the green target costing technique takes into account the green target price, according to which the green cost is targeted.
2	Alcoaz, Bassem	2019	Employing the method of disjointed analysis in reducing costs under the target costing technique	The aim of the research is to present the concept of target cost and to employ the method of reverse engineering in a way that contributes to reducing costs while maintaining the level of quality. The research reached the possibility of reducing the cost of the product using the method of disassembled analysis as one of the technical tools of the target cost.
3	Jewishi	2018	A critical study of the costing methods used to reduce costs in industrial organizations	This research aims to discuss the concept and importance of the philosophy of cost reduction, and to discuss and analyze accounting studies that dealt with cost reduction, in order to reach the most used systems and methods in cost reduction, and to stand on the extent to which the actual application of these systems is achieved and the extent of the effectiveness of those systems and methods in achieving the actual reduction in the elements of the costs of the industrial sector. The researcher concluded that the methods of activity-based costs, specification-based costs, and target costs represent the most used methods in reducing costs at the theoretical and academic levels, but there is no actual application of them in practice.
4	ENDIANA.el.at	2020	The impact of green accounting on corporate sustainability and financial performance	Corporations have a significant impact on the environment and nature conservation. The accounting sector can play a role in environmental conservation efforts related to environmental costs, and the implementation of a Corporate Sustainability Management System (CSMS) can be a key factor that can improve a company's financial performance. This study aims to determine how green accounting through the application of CSMS can improve the financial performance of manufacturing companies in Indonesia, a developing country. The sampling method used was purposive sampling, the results of this study indicate that manufacturing



				companies in Indonesia are able to apply green environmental accounting by allocating appropriate environmental costs by allocating a portion to implement an environmental for improve financial performance.
5	Magablih. el.at	2017	The impact of green accounting in reducing environmental costs in production companies	Green accounting and its impact on cost reduction as a profession is the duty of improving the internal view of any economic unit and developing information that clarifies its role in its environment and its contribution to providing appropriate information for decision-making, which leads to optimal utilization of resources, preservation of the environment and avoidance of threat. Thus, taking into account environmental accounts, especially environmental costs, would enable the accounting profession to provide more relevant information, make the appropriate administrative decision, and develop accounting methods in order to provide environmental information to make it sound.

Source: prepared by the two researchers, based on the indicated sources for each study.

The second topic is the theoretical side

Mechanisms of concordance between green target costing and disjointed analysis

INTRODUCTION:

Target costing has been applied by major Japanese manufacturers and other countries and many market leaders such as 100% of Japanese auto manufacturers and 80% of Japanese assembly companies use target costing, but only 40% of companies in the United States use target costing and with However, only 30% of European companies have applied the cost target (Sorour: 2021). In the near future, we can see the environmental repercussions on these companies, which makes the application of green target costing a crucial and important matter for survival in the competitive market, because technological progress and the ability and ability of human associations to influence public opinion make the application of green target costing techniques a crucial matter in industrial companies from In order to plan to reduce costs in the future (Dewa, el.at, 2012).

As for the method of disassembled analysis, it has been used throughout the ages on various economic activities, especially those related to them in the industrial fields. In order to reach an understanding of the mechanism of action of any device or program,

and to understand the mechanism that hinders the work of any device or program, and there are various uses of reverse engineering or disassembled analysis, including the study of design principles and product analysis (Sorour,2021:276), Therefore, this topic will focus on defining the green target costing technology and the disjointed analysis and the possibility of compatibility between them to achieve the objectives of companies related to cost reduction while maintaining the highest possible quality, in order to meet the desires of customers and try to maintain their position and stay in the competitive market.

First: green target costing and its role in improving product quality and reducing costs:

• **Definition of green target cost:**

Green target costing is defined as a technique based on integrating environmental costs and requirements with traditional target costing (Sherine, el.at, 2014:56). It is also defined as: an accounting method that includes indirect benefits and costs of economic activities, such as environmental effects and health consequences of business plans and decisions (8, Indiana, el.at, 2020), It was also defined as a process based on determining the target price and target profit in the light of market factors to reach the target cost of the product, which is used as a tool for planning and early reduction of the



allowable cost in producing and designing a new product or developing an existing product (Sorour: 2021: 50)

- **The concept of (green) accounting:**

Green environmental cost accounting appeared at the beginning of the nineties as a result of the efforts made by those interested in this field, after the negative aspects appeared in its exploitation, and several names appeared for it in the field of accounting indicating this aspect, including: green accounting, environmental accounting for sustainable development, accounting environmental and economic. (Sorour: 25: 2021).

It is also a type of accounting that attempts to include environmental costs in the financial results of operations, as it has been said that GDP ignores the environment and therefore policy makers need a revised model that includes green accounting. In other words, it is attempts to integrate a broader set of social protection measures into macroeconomic studies as measures covering Aspects of policy directed at social, environmental and development matters. (Parziale ed, at. 2016) The application of green accounting pays full attention to the concept of saving, i.e. saving land, saving materials and saving energy; It is based on the ecosystem.

The goal of applying green accounting is to increase the efficiency of environmental management by evaluating environmental activities in terms of costs (environmental costs) and benefits or impacts (economic benefits) as well as helping companies understand and manage potential differences between traditional economic goals and environmental goals. It also increases the important information available for the analysis of political issues especially when such vital information is often ignored. (Magabliih, 2017: 4).

Green environmental cost accounting appeared in the early nineties as a result of the efforts made by those interested in this field, and several names appeared in the field of accounting referring to this aspect, including: green accounting, environmental accounting for sustainable development, environmental and economic accounting.

Environmental responsibility is a key issue among companies in this modern era, as it has become necessary for the company to formulate methods to promote green issues for the present and the future. Green accounting helps promote a sustainable future for business as it puts green public procurement and

green research and development in the big picture. Pollution penalties and incentives (such as tax breaks, polluting permits, etc.) are also an important part of this type of accounting. (Nakajima et al. 2015).

- **Green Target Costing Steps:**

The authors present six basic steps to integrate environmental costs requirements with green TC and these steps are: Helu, el, at 2012(

1. Identifying and evaluating the desired green specifications and functions from the customer's point of view. In this sense, it is noted that customers are usually unaware of environmental requirements.

2. Evaluation of the target selling price and the green price premium by analyzing competitive market conditions and customer comments. While some studies argue that customers are willing to pay the cost of green premiums. Others point out that this price can only be achieved under certain conditions, and so if the customer is not willing to pay more for the sustainable attributes, the selling price will be determined current market selling price.

3. Green profit margin adjustment and allowable cost calculation: It basically represents the green profit margin adjustment and allowable cost calculation as in the traditional TC process, to calculate the allowable costs by deducting the target profit margin from the target price. However, in the case of green products, the profit margin must be adjusted due to the high risks associated with this type of product. These risks include the lack of common experience of organizations still facing the challenge of sustainability, and the risks associated with a high probability of a sustainable product being less successful than the traditional one. In addition, it is also necessary to consider indirect costs.

4. Allocation of cost to green cost drivers: After determining the allowable cost of a product, designers determine the allowable cost for each component. Customers' desires are then translated into product characteristics, and thus assigned to product components. The process of assigning values to product components is very subjective and is usually done By posting the quality function.

5. Implementation of green cost management procedures This step consists of determining the standard costs of the components taking into account the costs of preparing those products, and the comparison of the standard cost and the allowable



cost of each component is carried out through a value control chart, and an analysis of differences in order to improve the design of the components and reduce the total cost without prejudice functionality and quality.

6. Green Kaizen Costing or Continuous Improvement Process: It is an extension of traditional Kaizen costing which is now concerned not only with cost reduction, but also with environmental issues.

• The role of green target cost in improving product quality and reducing costs:

Target costing has witnessed a wide range of changes. In the past years, we see great interest in applying target costing in industrial companies along with green accounting to provide high quality products while preserving the environment. Industrial companies in the new competitive environment are obligated to preserve the environment when they manufacture their products.

The application of target costing was aimed at defining objectives that should be directed to the process by improving product quality and reducing costs, as is the case in activity-based costing (Seuring 2001). There are two basic concepts that target costing techniques seek to achieve:

The concept of quality: It is the need, desires and expectations of the owners or users, where the value of the product consists of those benefits and satisfaction that can be obtained from the use of the product. If the product fails to provide the desired satisfaction and benefits, the value will be poor.

Cost concept: It includes the initial cost in addition to the life cycle cost, which is the long-term cost that is included to maintain the survival of the product in service or functionality and in value engineering.

The methodology for determining the target cost can be summarized in three steps: (Cooper & Slagmulder, 1999)

1. Market-driven cost All products must meet customer requirements, which is conducive to product development, to avoid costly products and compare them with customers' willingness to pay, cost targets are discounted. This market-driven cost determines the maximum price the product will sell for. By subtracting the target profit margin, the allowable costs for the product are obtained.

2. Determine the cost at the product level Within the target cost at the level of that product, the allowable costs are compared to the current costs, which may result from the use of available design and

production techniques. Usually, current costs will exceed allowable costs, so cost reduction is very necessary in order to survive in the competitive market.

3. Determine the target cost at the component level For each component of the product, a comparison is made between its importance to the customer and its costs. Targeted costs at the component level can form the basis for contracting with suppliers, thereby driving cost pressure along the supply chain Consumer preference for consumer-oriented products can be explained by these companies have market differentiation, competitive advantages Consumers tend to pay higher prices for environmentally oriented products (distinctive prices). Therefore, the target cost method is based on the allowable cost, which is:

Target cost = expected selling price - desired profit

The target cost method is based on a design approach within the costs limits, taking into account the target price that is affected by the market as a basis for building and setting the target cost, in addition to taking into account good quality, and when setting goals for the facility, it must have a vision and a clear idea about the needs of customers and the products that They are willing to pay for it. As well as the target price and target cost, all of these express the determinants of the cost structure (Ionescu, Cicilia, et al: 2014).

Second: the concept of disjointed analysis:

• The definition of disjointed analysis:

It is defined as a mechanism concerned with discovering the technical principles of a machine or system by analyzing its structure, function and method of operation. This process is often done by analyzing a system (mechanical machine, computer program, electronic piece) into parts or trying to remake a similar system that performs the same function as the original system (<https://laravel-ar.com/article/>)

It means rediscovering the technical principles of applied mechanics through the processes of structural analysis, technological analysis, performance and function analysis, and operational analysis, so that the design data of a system or a product is reformulated in order to design new parts of the system in order to improve performance (Sorour: 2021: 128)

Through the foregoing, it can be defined as the process of analyzing the technical parts of a machine



or electronic devices or parts in order to identify the materials used in manufacturing and the costs of these materials and their role in improving product quality and cost in order to improve the quality of the company's products and reduce costs.

The disjointed analysis has contributed to the creation of great competition between producers throughout history. Since its inception as an effective tool for competition among the arms industry, it had a significant impact on improving the development capabilities of these weapons, which reached more than just symmetry, but rather contributed to the differentiation between these technologies, and their use became wider. Much in different productive industries by most countries, Especially after the great developments in the use of modern information and communication technology techniques, the use of disjointed analysis has developed greatly as a result of this technology, as well as because of the competition factor as a result of the great overlap between the markets that enabled producers to export their products to different countries, it has become the main factor in survival In the competitive market, it is the quality of the product and its cost because of the great similarity between the services that customers get from these products.

• **Types of disjointed analysis or value engineering:**

The types used for reverse engineering or decompiler analysis used are: (Surour: 2021: 246)

1. Dynamic kinetic disassembled analysis: It aims to identify ways to reduce the number of assembly operations required in manufacturing or the time taken to perform them. The method includes disassembling parts of competing products, analyzing assembly operations and comparing them with the products of the company under study, and seeing if it can be applied to the company's products that will benefit them.

2. The disassembled cost analysis: aims to reduce the costs of the components used in the product. The cost of the components used in competitors' products is compared with those used by the company. If the component or element used by the company is more expensive than the competitors' cost, a functional analysis is conducted to identify the additional cost resulting from the increase in functionality. If the functions of the components are identical, cost-reducing activities are sought, such as improving

functionality, reducing weight, reducing setup times, and reducing the number of operations.

3. Disassembled analysis of materials: The method of disassembled analysis of materials includes comparing the materials and surface treatments of the components used by competitors with those used by the company, as competitors' products are purchased and dismantled in order to identify the innovations introduced by competitors. This analysis is useful in the thinking phase of the company regarding the development of future products, and this analysis is effective in identifying the parts that work together and that provide the same function.

4. Fixed disassembled analysis: The static disassembled analysis method is the simplest type of disassembled analysis, as it includes dismantling competitors' products into their components and then placing them on a table or displaying them on a screen so that design engineers can see the difference between the company's products and competitors' products.

5. Disassembled analysis of operations: Comparison operations include manufacturing of similar parts and reducing the difference between them.

• **Basic steps in disjointed analysis:**

As described earlier, the main purpose of disaggregated analysis is to transform a discrete data set into a seamless continuous model. In this section the various aspects of this transformation are described. A discrete data set usually consists of coordinate values for the measured data points, in terms of organizing the data by following these steps: Pathak (Kumar A: 2013:38),

1. Digitizing the engineering part: The first goal of the disassembled analysis methodology is to digitize the physical model. Digitization is the process of capturing the data of a physical model and converting it into digital form. This can be achieved through the use of contact or non-contact sensing techniques. After performing multiple scans from different sides or by rotating the object, the sample points are combined into a single point cloud from which the surface needs to be recreated. Building. The resulting adaptive reconstruction method relies on repeated application of the following steps:

A. starting from an initial bounding point surrounding the original point cloud, the hierarchical division of space creates a point that is set by repeatedly subdividing each individual point into a sub point.



B. the resulting network is obtained by dividing the coarse network. Setting the final data locally constrains the network towards the point cloud.

C. all vertices are projected onto local shadow levels defined by individual points.

D. the purpose of obtaining the surface of the object: the set of measurement points and STL data are used in two ways:

- Analysis of own product and other product (design.)

- Confirm the accuracy of special products (checking) The design purpose is divided into:

- Generate a 3D mockup to shorten the development period, 3D data is not available, use it as CAD data to carry out analysis.

- The purpose of the examination is also divided into: Examine the dimensions of the object Examine the amount of deformed substance and determine the age of the object based on the result.

2. Post-treatment: The position of the network vertices is changed by calculating the midpoint of the directly connected neighbor vertices. To improve the quality of the generated network, an additional optimization step can be performed. In a successive step, this midpoint can be predicted again on the tangent planes of the corresponding datasets according to the definition of the theorems. In general, mesh optimization is an iterative process, which is applied multiple times to obtain the maximum possible surface quality accuracy which helps in 3D CAD modeling.

3. mathematical theory :Based on previous research on triangulation under the environment of deconstructed analysis, mathematical theory and computational algorithms for triangulation are well developed. A triangular polygon mesh containing sufficient geometric information can be efficiently generated for a given set of data points. The basic concept of triangulation is the Delaunay triangulation. In addition there are many mathematical algorithms for Triangulation, including marching cubes, Poisson surface reconstruction, least squares moving methods and so on. While Triangulation algorithms may not be perfect as per the requirements. So they tended to create grids with a large number of triangles. In addition to these algorithms implicitly the network to be rebuilt parameter settings often affect results and stability.

4. Fragmentation: Network segmentation is one of the most important steps of sparse analysis. Fragmentation is a complex process in which the

original data points are subsets of each individual that logically belongs to a primitive surface. Some of the most efficient methods use hashing methods and they are called direct hashing methods. In general, the segmentation process involves an estimate of first- and second-order surface properties. First-order segmentation, which is based on normal vectors, provides an initial subdivision of the surface and detects sharp edges as well as flat or highly curved regions. Second-order fragmentation divides a surface according to major curvatures and provides a sufficient basis for the classification of simple algebraic surfaces Most segmentation algorithms come with surface combinations, which best fit a primitive surface of the appropriate type for each region It is important to define a hierarchy of surface types in order of geometric complexity

5. Solid Modeling: You will likely use solid modeling of the shape geometry process to support the disjointed analysis using any modeling software such as Auto CAD, CATIA, Pro/E, etc. There are two basic representations of solid models which are boundary representation and feature based representation. There are also some proposed methods for automatically generating parametric representation models from point clouds or triangular mesh with profile curve. It is constructed by connecting point to point in spline manner. Some focused on learning about manufacturing features for the purpose of process planning. However, none of these methods can fully automate the construction process and create fully barometric solid models.

6. solid form export: Reconstructing the 3D model using disassembled analysis, the software will have to export traditional CAD packages to support the engineering side of the design. Conventional solid model exchanges via standards, IGES or STEP, STL, are insufficient because barometric information, drawing and dimensional constraints including solid features, and feature tree, are not completely symmetric through exchanges. The live solid model can be exported or imported in some programs, such as the LiveTransfer™ module for Rapidform XOR3 with CAD/CAE/CAM systems using standard formats such as IGES, STL, VDA and STEP.

Third: Compatibility between green target costing and disjointed analysis and their role in quality improvement and reduce costs:

In order to maintain the competitive advantage of the product in a competitive market, it was necessary



to find ways to reduce costs and improve product quality in comparison with similar products. Cost by reducing it while ensuring the production of high-quality products that meet the customer's needs and requirements in terms of price, specifications and functionality (Al-Kawaz: 2019: 11). Also, the expansion of using green target costing technology was a result of the great competitive pressures between producers in the current era, which led to the production of competitive products that are almost similar to a large extent, which required companies to develop their competitive strategies in manufacturing their products in order to survive in the competitive market. We note that these companies seek to search for the best cost management techniques (Endiana, ed, ai 2020.733) in order to provide products with desirable quality and competitive costs to the customer, so it is important to know the characteristics and costs of competing products, which led to the necessity of compatibility between the green target costing technology and the analysis The disassembled, as these technologies provide information that helps in identifying the cost and quality of competing products.

The target costing technique would reduce costs at many points, including in the design stage if it contributes to simplifying the design at the lowest possible cost. In the production planning stage, the target cost contribution is in reducing the cost of direct raw materials by finding good and lower-cost alternatives, as well as reducing direct labor through knowing the number needed for production in the design stage and in the operational operations stage.

It studies the related costs that were previously determined by knowing the product specifications through disassembled analysis, that is, in a proactive manner, a search that helps the management to study the relevant costs that contributed to the preparation and appropriate design of the product that achieves customer satisfaction while increasing the company's ability to compete in terms of design. The open product is not only done in light of the available capabilities, but also in harmony with the requirements of customers (Egbuhuzor, el .ai, 2016.5) in order to enhance the cost reduction process, it is necessary to study all the cost elements that enter into the product and along the value chain, starting from research and development and then Manufacturing, then production, down to after-sales services. (Al-Kawaz: 2019: 13).

From the foregoing, the two researchers note that the process of compatibility between the green target cost and the disassembled analysis can contribute to improving the quality of products and reducing costs. Accurate, as well as determining the environmental costs in the manufacturing phase and the phase of product disposal. Compatibility in cost management techniques enabled major companies to continue, compete and expand their activities.

In addition, the compatibility of cost management techniques contributes to preserving the environment through the compatibility of multiple production cost techniques with the green target cost, which has become the most important technology at the present time as a result of environmental pollution and pressures from organizations, governments and society in general.

The success of the disassembled analysis is linked to the information collected on the best practices of competing economic units regarding products and in a way that leads to improving their value in the market, meaning that the disassembled analysis is an analytical process of the characteristics and components of the product or competing products to determine guest performance and design while providing a clear vision of operations and activities that contribute to its production for the cost associated with it.

The process of achieving the target cost under the disjointed analysis is accomplished through an analytical process of the characteristics and components of the product or competing products and their analysis in order to reach results about the mechanism or process involved in the design and production of these products with any appropriate modification to the characteristics and specifications of the product of the company so that it is compatible with what comparable to competing products (254 Magablih, 2017). That is, according to the disassembled analysis, the products are disassembled in order to identify the points that make the product distinct and achieve customer satisfaction, while trying to benefit from them when designing the product in terms of determining the raw materials that can be used in production, as well as the direct labor cost required to operate these materials, as well as other cost elements. Thus, unnecessary cost elements that are not required for the production of product components are eliminated.



The third topic: the applied side of the research

First: an introductory brief about the Diwaniyah Tire Factory:

The Diwaniyah Tires Factory was established in (1974) according to the Ministry of Industry and Minerals letter No. (M / H / 6/25 S) on 1/4/1974. The factory produces net-type tires with the distinction of the Italian company Pirelli for various sizes (large, medium, small and agricultural), Its location is in Al-Qadisiyah Governorate, and the total area of the factory is 227,500 square meters. The factory contains an integrated infrastructure of sewage water networks, pure water networks, fire networks, electricity networks, internal transfer stations, industrial water networks, and a water filtration station. Administrative buildings, production halls, industrial service halls, warehouses, laboratories and water purification units are also available in the factory. There is also a substation with a capacity of (15 megawatts) that supplies our factory with electric power. This factory was chosen to be the sample on which the research was conducted for several reasons, the most important of which is its location Distinguished and a basic pillar of the national economy, if it is properly invested, as the factory's production is considered one of the best types of tires in the Middle East.

Second: Compatibility between the green target cost and the disjointed analysis in the Diwaniyah tire factory to improve product quality and reduce costs:

For the purpose of achieving compatibility between the green target cost and the disassembled analysis in the Diwaniyah tire factory, the target cost of the steel tire size (1200_24) must be determined in the factory by following the following steps:

1. Determining the target selling price: The target selling price is determined based on the perceived value of the customer towards the product of the economic unit or based on the average prices of competitors. The first method cannot be relied upon due to the inability to accurately determine the customers of the factory. Therefore, the second method was resorted to, which is relying on the average selling prices of competitors for the wireframe product size (1200_24), and competing products for the product in question were identified in terms of conducting a field survey and reconnaissance of the local market in which this product is sold in order to identify competing products and their selling prices, and the table The following shows the average selling prices of competitors for the wireframe product, size (1200_24):

Schedule (2): Wireframe Competitor Products (1200-24)

No.	The name of the competing product	Origin	Unit selling price (JD)
1	Maxis tire	Korean	250000
2	Bridgestone framework	Korean	275000
3	Grand frame	Korean	300000
	the total		825000
	÷ Number of competing tires		3 ÷
	= average selling price of competitors for a wireframe		275000

Source: Marketing Department at Diwaniyah Tires Factory and field survey of market prices.

The table above shows the most competitive products for the wireframe product, size (1200_24), and according to the policy of the Diwaniyah tire factory management, the target selling price is determined on the basis of the average selling prices of competitors, and thus the target selling price of the product in question is 275,000 dinars.

2. Determining the target profit margin: The factory management wants to achieve a target profit margin for the wireframe product size (1200_24) at a rate ranging from 10% to 20% of the actual cost, and

given the intense competition that the Diwaniyah Tire Factory is going through, it is preferable to choose the minimum For the target profit margin of 10% of the target cost.

3. Determine the target cost: the target cost can be determined by the difference between the target selling price and the target profit margin, and the target cost for the wireframe product size (1200-24) can be calculated as follows:

$$\text{Target cost} = \text{target selling price} - \text{target profit margin}$$



$$\begin{aligned} \therefore \text{Target selling price} &= \text{Target cost} + \text{Target profit margin} \\ &= 275000x + 10\% x \\ \therefore x &= 275000 / 110\% = 250000 \end{aligned}$$

Accordingly, the target cost of the wireframe product size (1200_24) is 250,000, and the target selling price is 275,000 dinars, while the target profit margin for this product was 25,000 through (250,000 × 10%), noting that the total cost of this product was In the amount of 306,164 dinars, and thus the gap between the total cost and the target cost amounted to 56164 dinars (306,164-250000.)

After the green target cost has been determined, the disassembled analysis will be applied in the Diwaniyah tire factory according to the following

Schedule (3): Engineering and technical specifications of the competing product (Bridgestone frame)

Engineering and technical specifications	measuring unit	specification
Rim diameter (wheel)	inch	450
pregnancy rate	tons	7-5
Frame section width	millimeter	275
The ratio of tire wall height to tire width	%	95
Frame texture composition	layer	3
load carrying capacity	kg/inch ²	65
The amount of rubber used	kg	30
pregnancy pressure	lbs/inch ²	80
The number of layers of fabric	lbs/inch ²	10

Source: prepared by the two researchers, based on the data available in the Planning and Follow-up Division.

It is clear from the above table that there is a set of engineering and technical specifications that are available in the competing product, which makes it more suitable for the needs, desires and requirements of customers.

2. Dismantling the product: For the purpose of dismantling the competing product, the technical and

steps:

1. Awareness (development): During this step, the products competing with the products of the Diwaniyah tire factory are identified, along with determining their engineering and technical specifications, in addition to determining the requirements that customers desire in the tire product in general, in a way that can achieve their satisfaction by meeting this product's needs and desires. The engineering and technical specifications of the competing product can be clarified. (Bridgestone tire) made in Korea, which can meet the needs and desires of customers and is compatible with the conditions of the Iraqi environment through the following table:

engineering information related to the types and quantities of raw materials used in its manufacture were relied upon. The parts and components of the local product (Diwaniya tire) and the competing product (Bridgestone tire) can be dismantled through the following table:

Schedule (4): Dismantling the components of the Diwaniyah tire product and the Bridgestone tire

the components	Bridgestone tire (kg)	Diwaniyah tire (kg)
Natural rubber	35	30
Carbon	2	6
HB	0.4	0.3
CBS	0.2	0.4
MBTS	0.9	0.6
OBTS	0.3	0.1
NY	7	12
Banob	0.1	0.5
Millican	0.4	0.1
iron wire	1.5	2.4
Reclim rubber	0.5	0.9
deuterex oil	2	1
Calcium carbonate	0.5	0.8
hexacuted	0.1	0.1
matchsticks	0.9	0.3
the total	51.8	55.5



Source: prepared by the two researchers based on cost records in the factory.

It is noted through the above table that there is an increase in the quantities used in the manufacture of the local tire when compared with the competing product. It is noted that there is an increase of (3.7) kg in the amount of raw materials used in the manufacture of the local, and that the increase in the amount of materials used in the manufacture of the tire is (1200- 24) It will lead to an increase in the cost of the local product when compared to the competing product, and therefore the matter will negatively affect the selling prices and thus not achieving the target profit margin.

3. Amending the specifications and characteristics of the product: During this step, the main specifications of the product are determined, which constitute the main motive for the acquisition of the product in light of the requirements of customers. It can achieve the required quality in terms of conformity to specifications as well as suitability for customer use.

4. Reviewing the installation and calculating the cost: In this step, the installation and parts involved

in the manufacture of the frame (1200-24) are reviewed, and a list is made of the parts, materials, components and characteristics that must be available when manufacturing the product in order to develop it. Therefore, it is necessary to focus on the functions that the customer needs. And that the cost is analyzed in order to determine the components and functions of the product in question and determine their cost, then calculate their cost, and finally determine the cost gap and the cost of the elements nominated for improvement and the targeted reduction for each of them, and in this step the parts of the product are identified and then the function of each part of these parts is studied and the parts that its cost is more than its benefit. Detailed information about its components, in addition to determining the quantities of materials in the design of the product, manufacturing processes, and a comprehensive understanding of the product. The cost of raw materials can be calculated after redesigning the product through the following table:

table (5): The cost of raw materials for the frame (1200-24) after applying the disassembled solution technique

the components	Quantity (kg)	Price per kg	Cost (JD)
Natural rubber	35	3850	134750
Carbon	2	1400	2800
HB	0.4	3370	1348
CBS	0.2	2100	420
MBTS	0.9	950	855
OBTS	0.3	450	135
NY	7	312	2184
Banob	0.1	2400	240
Millican	0.4	800	320
iron wire	1.5	3700	5550
Reclim rubber	0.5	1200	600
deuterex oil	2	450	900
Calcium carbonate	0.5	6750	3375
hexacuted	0.1	9000	900
matchsticks	0.9	2700	2430
the total	51.8	-	156807

Source: prepared by the two researchers.

It is clear from the above table that the cost of raw materials involved in the tire industry (1200-24) has become an amount of (156807) dinars, in addition to that the components mentioned in the above table can meet the needs and desires of customer .

5. Prototype development and testing: After identifying the influencing elements from the various paragraphs of costs involved in the manufacture of

the tire, where this process can also be developed in calculating the manufacturing costs affecting the determination of the final price of the tire. Achieving a cost reduction in addition to making aesthetic and safer improvements according to the competing product's disassembly and laboratory analysis. The total cost of the product can be calculated through the following table:

Schedule (6): The total cost of the frame (1200-24) after applying the disassembled analysis technique



No.	cost elements	Cost (JD)	Percentage (%)
1	direct materials	156807	66.52%
2	direct wages	48500	20.58%
3	indirect costs	30403	12.90%
	the total	235710	100%

Source: prepared by the two researchers.

It is noted from the above table that the cost of the grid frame size (1200-24) has become an amount of (235710) dinars after applying the disassembled analysis technique, where the cost of direct materials, direct wages and indirect costs were (156807), (48500), (30403) dinars on respectively,

and the ratio of these elements to the total cost was (66.52%), (20.58%), and (12.90%), respectively. The amount of cost reduction and the extent to which the target cost of the framework (1200-24) has been achieved can be clarified through the following table:

Schedule (7): The amount of cost reduction and the extent to which the target cost of the tire (1200-24) is achieved

Cost after applying the disaggregated analysis	Cost before applying the disaggregated analysis	Target cost	The cost ratio after applying the disassembled analysis to:		cost reduction
			Cost before applying the disaggregated analysis	Target cost	
235710	305400	275000	77.18%	85.71%	69690

Source: prepared by the two researchers.

It is clear from the above table that the cost ratio after applying the disassembled analysis to the cost before applying the disassembled analysis was (77.18%), and the cost ratio after applying the disassembled analysis to the target cost was (85.71%), and thus the amount of cost reduction is (69690) dinars, As the application of the disassembled analysis technique in the Diwaniyah tire factory is characterized by a certain specificity and may be of different type, which caused the variety of brands and tires competing for the tires of the Diwaniyah factory, as each manufacturer is distinguished by a specific technology of tires that is specific to it in terms of the type of technology used and the type of inscription used in the Al-Trad area (part touching the ground) Which is directly related to the age of the tire and the amount of fading that occurs in the tread area when the tire runs on the road as a result of the friction that occurs in this area, as the tire's durability is measured by the tread resistance to friction and preserving the depth of the inscription. Italian and is classified as a network tire and uses fabric and nylon to arm the frame.

of the Diwaniyah Tires Factory and cannot be included in the production process Only after making sure that they comply with the standard specifications intended for each raw material.

Accordingly, it can be said that the compatibility between the disjointed analysis and the green target cost technique leads to improving the quality of products and reducing costs in the Diwaniyah tire factory, the research sample, and thus the research hypothesis has been proven.

The fourth topic: conclusions and recommendations

Through previous studies and what was dealt with in the theoretical side of the research, a set of conclusions and recommendations can be presented, which are as follows:

First: Conclusions:

1. The green target cost is one of the methods that contribute to reducing environmental costs, as it contributes to linking the objectives of the economic unit in a manner consistent with the economic resources available to it, with more attention to the environmental aspect.

2. Green target costs and disjointed analysis are one of the most important cost management tools that are used by companies at the present time in order to increase profitability, competitiveness and survival by maintaining the cost, quality and function of products, by following advanced informational



methods and techniques such as value analysis and continuous improvement and disassembled analysis (disassembled analysis).

3. The disassembled analysis is one of the most important methods that help the company to identify opportunities to develop products and reduce their costs by evaluating and analyzing competitors' products and knowing their specifications and components in order to reach conclusions about the process through which these products were manufactured and provided.

4. Target green costing helps provide designers and engineering technicians with environmental information to help factor environmental considerations into standard forms that (green) designs should contain and comply with regulation, is in principle the same for all industries. The success of this endeavor is usually subject to the general limitations of modern technologies however the specific methodologies used in different fields can be vastly different.

5. The compatibility between the green target cost and the disjointed analysis will contribute to the development of the company's ability to compete in the labor market by helping the company to know the competitive position of the company as well as the areas of strength and weakness of competitors.

Second: Recommendations:

The two researchers concluded from this study the following results:

1. The use of green target costing technology will contribute to reducing costs, as it contributes to linking the objectives of the economic unit in a manner consistent with the economic resources available to it, with more attention to the environmental aspect.

2. The need to achieve compatibility between cost management techniques (green target costing technique and disjointed analysis) in order to increase profitability, competitiveness and survival by maintaining the cost, quality and functionality of products, by following advanced informational methods and techniques such as value analysis, continuous improvement and disjointed analysis (disassembled analysis).

3. Companies should benefit from using the disjointed analysis method in order to identify competitors' products and identify opportunities for product development and reduce their costs by

evaluating and analyzing competitors' products and knowing their specifications and components.

4. The imperative of green target costing in providing designers and engineering technicians with environmental information to help incorporate environmental considerations into standard forms that (green) designs should contain and to comply with regulation, is the same in principle for all industries. The success of this endeavor is usually subject to the general limitations of modern technologies however the specific methodologies used in different fields can be vastly different.

5. Work to increase environmental awareness by supporting the efforts of international environmental agencies and organizations in many countries of the world that have an impact on increasing interest in the environment and its issues.

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