

## Using Green Target Costing and Reverse Engineering Techniques to Reduce Costs

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### **Abstract**

The research aims to clarify the knowledge foundations of the green target cost technologies and reverse engineering and to clarify their role in reducing costs. It also aims to use the two technologies in the research sample company and to indicate their role in reducing costs. The deductive approach was used in the theoretical side of the research and the inductive approach in the practical side, and the researcher reached a set of conclusions, the most important of which are: The green target costing technique is a useful tool to help determine the allowable cost of the product because customers are often unwilling to bear additional purchase costs for products and in light of The conclusions that have been reached, the researcher presented a set of recommendations, the most important of which are: The economic unit, the research sample, must seek to know the details and components of competing products in order to be able to develop its products in line with the capabilities of the competing product.

**Keywords:** Target Cost, Reverse Engineering, Cost Reduction.

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## **Introduction**

The openness of the Iraqi domestic market to a variety of low-priced foreign products has led to the exposure of Iraqi companies to many pressures, the most important of which was the high costs of production, and moving away from the competition market, which means that there is a deficiency in the traditional cost tools, which requires These companies search for means that enable them to reshape their tools to suit the requirements of the stage through the use of techniques that can contribute to cost reduction, such as green target cost technology and reverse engineering, which may enable the research sample company to reduce costs and return to competing with foreign products.

## **The First Axis: Research Methodology and Previous Studies**

### **First: The Research Problem**

Most companies suffer from high production costs, which makes them unable to compete with foreign products that are available in the local market at low prices. Therefore, Iraqi industrial companies must use techniques that can contribute to cost reduction, such as green target costing and reverse engineering. The research problem can be formulated with questions. following:

1. Can the green target costing and reverse engineering technologies be used in the research sample company?
2. Can the use of green target costing and reverse engineering technologies in the research sample company contribute to cost reduction?

### **Second: Research Objectives**

#### **The Research Aims to**

1. State the knowledge foundations of the green target costing and reverse engineering techniques, and clarify their role in reducing costs.
2. The use of green target costing and reverse engineering techniques in the research sample company, and an indication of their role in reducing costs.

### **Third: The Importance of the Research**

The importance of the research revolves around the fact that the green target cost technology seeks to determine the amount of the necessary cost reduction, which helps in adopting the reverse engineering technique that works on employing the available capabilities for the purpose of achieving the required reduction, which may contribute to reducing production costs in the company The research sample.

### **Fourth: Research Hypothesis**

The research is based on a basic hypothesis as follows

"The use of green target cost techniques and reverse engineering can contribute to cost reduction".

### **Previous Studies**

1. Study (Horvath & Berlin, 2012).  
Green target costing: Ready for the green challenge.  
The study aimed at the need to seek to intensify efforts to meet the needs and desires of customers, as companies need to harmonize their business in a way that is oriented towards environmental protection and responding to green challenges.
2. Study (2022 Alobaidy).  
The Integration Between Green Target Cost and Value Engineering to Achieve Competitive Advantage.  
This study aimed to verify the contribution of integration between green target costing and value engineering in achieving competitive advantage.

## **The Second Axis**

Knowledge foundations of green target costing techniques and reverse engineering and their role in reducing costs  
The concept of target cost: The concept of target cost (TC) refers to the cost of a product or service that is derived from the market price. The main idea of this costing technique depends on providing products or services at competitive prices and at reasonable costs that meet the expectations of customers (Aladwan et al, 2018: 3). It is a technique to reduce costs during the research and development phase and design of new products or the development of existing products by making changes in the design model or in some parts (Al-Khateeb et al, 2020: 429 ).

Target cost technology was developed to manage car costs by TOYOTA in the early sixties of the last century in response to customer requests for price reductions, and due to the pressures of intense competition and customer demands in the nineties, companies began to introduce this technology in their accounting and administrative system in order to improve cost management and reduce the price of cars. market, which leads to increased demand by customers and thus increased profitability and productivity (Neralla, 2020: 150)

Target costing is the concept of price-based costing rather than cost-based pricing. Target price is the estimated price for a product or service that potential customers are willing to pay. The target cost is the estimated long-run cost of a product or service that allows the company to achieve a target profit (Celayir, 2020: 1309).

Green target costing is the process of integrating target costing mechanisms and their application into the development of an environmental sustainability strategy. Target costing strategy enhances the strength of practices and leads to a more comprehensive approach. It can be a useful tool to help determine the allowable cost of a product because customers are often unwilling to bear costs. Additional purchase of products (Bijan, 2021: 956).

### **The Importance of Applying Green Target Costing Technology**

The application of green target costing technology has positive aspects, whether in the production of goods or services, which can be summarized as follows (Al-hosban et al, 2021:7) .

1. Promotes top-down commitment to the manufacturing process and innovation to achieve some competitive advantages.
2. Helps establish a market-driven company management to design and manufacture products that meet the price required for market success.
3. Uses management control systems to support and enhance manufacturing strategies, and to identify market opportunities that can be converted into real savings to achieve the best value for money rather than simply achieving the lowest cost.
4. Ensures that the products are better suited to the needs of its customers.
5. It significantly reduces the product development cycle and product costs.

Therefore, the application of the target costing technique leads to the following advantages: (Mohammad, 2021: 6).

1. Customers can easily purchase the company's products at low prices.
2. Reduces the product development cycle.
3. Significantly reduces product cost.
4. It works on the solidarity of the internal departments of the company, works in a team spirit, and assumes responsibility for marketing, planning, developing and manufacturing products.
5. Mixing with customers and suppliers in designing products and knowing what is expected and what the customer prefers from the products of other companies.
6. By defining target cost as a clear objective that leads to improving product quality.

Green Target Costing Objectives: Green target costing has a set of goals, as follows: (Celayir, 2020: 1311).

1. Ensure the alignment of companies and costs in particular with the market.
2. Provide cost management support for the product in the initial stages thus ensuring that product costs can be managed even in the design stage.
3. Helping companies increase their current market share.
4. Maximize profit margins, ensure continuous cost control and target dynamic cost management.
5. Assisting in shaping the company's strategy according to market requirements.

Steps to apply the target costing technique: (Hematfar et al, 2020: 3-4), (Mohammad, 2021: 9-10).

#### **1. Determine the Green Target Selling Price**

This is done based on market research, which is the price that the customer can pay to obtain the good or service that meets his desires and needs, and it is the competitive price that companies seek to reach to stay in the market.

#### **2. Determine the Green Profit Target**

It is the profit that the company seeks to achieve for each sold unit of the product, and it may represent a percentage of the target selling price and not as a percentage of the cost, as is the case in the cost-plus profit margin entry.

#### **3. Determine the Green Target Cost**

Management accounting can play an important role in effectively determining target profits and target costs. The green target cost is calculated by subtracting the target profit from the target price, according to the following equation: (green target cost = green target price - green target profit.)

**4. Calculating the Current Cost**

The current product cost is calculated, which represents all cost elements related to the product life cycle.

**5. Calculating the Target Cost Reduction**

It is defined as the difference between the target cost and the current cost or value that the company must provide to achieve profitability.

**6. Achieving the Target Reduction**

Achieving the target reduction requires the use of a set of tools or methods, including value engineering, benchmarking, and reverse engineering (disassembled analysis), and the reverse engineering technique will be clarified.

**7. Reverse Engineering (Disassembled Analysis)**

Reverse engineering evaluates competitors' products to identify opportunities to develop the company's products and reduce costs, and focuses on analyzing the competing product to determine its characteristics (components) designed with a clear vision of the processes used in its production (Alawaed et al, 2022: 93), thus, reverse engineering allows manufacturers By dismantling and analyzing the competing product in order to make changes or improvements to the company's product (Celotto, 2022: 3), the impact of reverse engineering on the industry today is much higher than simply offering less expensive products and stimulating more competition, as it plays an important role in supporting industrial development. It is an appropriate tool for accelerating the renewal process of industrial development in the future, in which competing products are dismantled in order to reveal competitive characteristics and advantages and work on analyzing and improving them (Kohlweiss, 2021: 241.)

Types of reverse engineering or disassembled analysis

There are several types of disassembled analysis that are used to analyze the competing product with regard to raw materials, manufacturing methods and the parts they contain, which are: (Muhammad, 2020: 354), (Hilton, 2008: 652.)

1. Dynamic Tear-Down analysis: It focuses on reducing the number of product assembly operations or the time required for the assembly process.
2. Cost Tear-Down analysis: It focuses on testing ways to reduce the costs of the main components used in the product.
3. The disassembled analysis of raw materials Material Tear-Down: This is done by comparing the raw materials and formal treatment of the main components used by the company with the raw materials used by competitors.
4. Static Tear-Down Analysis: through which the competing product is disassembled into its main components and then compared with the components used in the competing product.

Reverse engineering steps: There is a set of steps to implement reverse engineering, which are: (Jacob and Saleh, 2013: 256-257), (Ganesh, 2019: 16 & Dhipakumar).

The first step: Awareness (development): Recognizing that there is a company that has introduced a product to the market that is equal to the time and expenses spent, and is represented in:

1. Clarifying the scope of the product, i.e. an accurate statement regarding the customer's needs.
2. Dealing with the product as a black box with regard to the internal functions and characteristics of the product.

The second step: product decomposition: Real or tangible experience becomes the basis for the redesign approach. The current configuration of the product should be understood in detail and, most importantly, the customer's needs should be compared with the functionality of the current product.

The third step: job analysis: Job analysis is the main key to accomplishing two tasks:

The first task: Developing the energy plan for the product through its components.

The second task: functional construction and is developed through the scheme related to the customer's needs.

The fourth step: Publication of requirements: It is a good understanding of the restrictions between the components of the product to know the possibility of making changes to the design without changing the technical requirements when a specific component is excluded.

The Fifth Step: Formation of Technical Specifications: It aims to form specific technical specifications that are directly related to the needs of olive trees, as these specifications constitute clear objectives.

The sixth step: Developing the model and testing: To develop the model, one should start with each of the customer's needs or engineering indicators, as the necessary product components should be included in the list and the impact of

each component or group of components should be identified as the elements responsible for achieving the customer's need.

Benefits and achievements of reverse engineering: Reverse engineering (disassembled analysis) has a set of benefits, which are (Amini, 2017: 78.)

1. Building the technical capabilities of the manufacturers by getting to know the product and fully understanding it (obtaining technical knowledge of the products) and building self-confidence among engineers and industry experts.
2. Updating, improving and developing product design to meet customer needs such as better operation, adding features, troubleshooting product errors and meeting market requirements such as technological change or improvement and cost reduction.
3. Creating the ability to understand while transferring advanced technologies.
4. Training of required experts in strategic industries.
5. Take systematic steps to help understand and document the design processes.
6. Enable benchmarking to understand competitors' products and develop better products.
7. Re-engineering using the technical knowledge obtained by reverse engineering.

### **The Concept and Importance of Cost Reduction Philosophy**

There are many means and methods that help organizations achieve and increase profitability, including increasing the selling prices of products, or increasing the amount of sales through the use of the discrimination strategy, which aims to improve the quality of the products provided by the organization and distinguish it from similar products in other organizations, or change the proportions of the commodity mix to determine The best selection of products that contribute to achieving the largest possible profit, or the elimination of products and activities that do not achieve the desired profits. However, organizations may not be able to control the previous methods and tools because of the conditions of supply and demand for products, and therefore the philosophy of cost reduction is the best way for organizations to improve profitability and strengthen their competitive position (Butter, 2020: 2.)

Costs are considered the basic foundation for achieving competitive advantages for business companies, and an important basis for the survival and continuity of companies in light of the contemporary business environment that is characterized by change, rapid development and intense competition. The needs and desires of customers in the required goods and services have become many and varied, including obtaining products with multiple characteristics and high quality at a price Low, and since achieving a low price requires cost reduction from the perspective of customers, cost reduction has become one of the most important goals that companies seek to achieve without prejudice to product specifications and maintaining the quality level required by customers (Akeem, 2020: 19.)

Cost reduction has been defined as the process of achieving savings in the costs of activities by reducing the time and effort required to complete them, or by excluding some overlapping activities that do not add any value to products, provided that their exclusion does not affect the quality and characteristics of the product (Liu et al, 2022). : 2.)

Based on what was previously presented, the cost reduction philosophy focuses mainly on achieving the optimal use of available resources in a way that reduces the areas of waste and misuse and directs the cost to the necessary activities that add real value to the product, while achieving customer satisfaction by providing the product with quality and distinguished specifications at the lowest possible price. Compared to competitors' prices, and from this point of view, cost reduction should take a moving form instead of the static situation that has been used to. For the cost as long as there is an opportunity that can be invested to penetrate the target cost and reach a better level.

### **Third Axis**

The use of green target costs and reverse engineering techniques in Al-Diwaniyah tire factory.

This axis deals with the use of green target costs and reverse engineering techniques to reduce the costs of the tire producer for the Diwaniyah tire factory, which produces a group of tire sizes.

(1200/24) The axis will be divided as follows:

#### **Firstly: Applicable Costing System**

The Diwaniyah Tires Factory operates according to the unified accounting system, as is the case in all production factories. As for calculating costs, there are many cost centers, which can be described as follows:

1. Control Center No. (5): It includes centers specialized in production operations in the factory, as their costs are charged directly to the producing units.
2. Control Center No. (6): It includes production service centers that provide services to production centers, and their costs are charged indirectly to the producing units.
3. Control Center No. (7): It includes marketing services centers, as its costs are charged to the product sold indirectly.
4. Control Center No. (8): This center represents the administrative services, and its indirect costs are charged to the products.

According to the costing system used in the factory, the production cost of the 1200/24 tire amounted to 267,000 dinars.

The Diwanayah Tires Factory suffers from the high costs of producing tires, which negatively affects the level of sales and profits, in addition to the presence of many competing products at low prices, which led to a decline in the factory's ability to compete and exposure to repeated losses, so it is necessary to use techniques that contribute to reducing costs and returns factory to the competitive market.

### **Second: Applying Green Target Costing Technology**

Determining the target selling price and the green price premium: This requires knowing the selling prices of similar products in the local market, so the researcher tried to find out the selling prices of competing tires in Suf, as well as interviewing some agents who deal with these products, as well as personal interviews with the director of the marketing department in the factory. The research sample, so it turns out that there is a group of competitive products that are sold at different prices ranging from (300,000-200,000) dinars, as shown in Table (1), and the target selling price for tires of size 1200/24 for the research sample factory is about 257,000 dinars for the tire (it was determined the target price is based on the use of the weighted average selling price of competing products in the market.

**Table 1: Selling Prices Competitive Products from the Frame Size 1200/24 and Selling Prices**

Sequencing	Competing Product	Selling Price (in Dinars)
1.	Golden Crown	300000
2.	Blacklion	278000
3.	Sportrak	250000
4.	Annaite	200000

Source: prepared by the researcher based on the data of the Marketing Department

Determination of the Green Price Premium:

For the purpose of avoiding the risks of customers not wanting to buy the product because of its high price compared to the traditional product, the company decided through the engineering and cost staff to add (6000) dinars only as a green price premium, which is a relatively symbolic amount, and therefore the green target price will be equal to (263000 dinars.)

Determining the green target profit margin: Through personal interviews with the manager of the company and the director of its marketing department, the desired profit margin was determined, which ranges between (5% - 10%), and given the conditions of competition surrounding the company, the researcher chose a profit margin between the limit The lowest and the highest, which is 7% of the selling price. Thus, the target profit is (18410) dinars for the frame. It was calculated as follows: - The green target profit = the green target selling price x the green profit margin percentage = 263000 x 7% = 18410 dinars.

Determine the green target cost: The target cost of the tire is calculated by subtracting the target profit margin from the target selling price as follows: The target cost of the tire = target selling price - target profit margin = 263000 - 18410 = 244590 dinars.

Determining the current cost of the tire: Based on the accounting records of the Cost Accounts Division in the research sample factory, the cost of producing the tire size 1200/24 amounted to 267000 dinars, which will be adopted to determine the target reduction.

Determine the target reduction: After the green target cost and the current cost have been determined, the target reduction amount will be calculated through the following equation:

$$\text{Target reduction} = \text{current cost} - \text{green target cost} = 267000 - 244590 = 22410 \text{ dinars.}$$

Third: Applying reverse engineering (disassembled analysis) to achieve the targeted reduction.

For the purpose of applying the reverse engineering technique, it is necessary to provide data related to the production of tires of size 1200/24 for the research sample factory and data for the competing product, and through personal interviews with agents who deal with this size of tires, it was found that there are many foreign products at different prices, as shown in the table (1) above.

Through the table, we notice that there is a group of competing products, and when interviewing the director of the marketing department in the factory, the research sample indicated that one of the most competitive products for the factory tire is the Korean tire of the type GOLDEN CROWN because of its high specifications, so it was chosen to conduct a process Reverse engineering, and data related to the product will be collected in the research sample factory and the competing Korean product as follows:

Data related to tire production for the research sample factory and the competing tire:

In this step, data on the production of the 1200/24 tire is collected, related to the quantity of raw materials involved in the production of the tire, their types and prices, and according to the departments that deal with these materials for the product of the research sample and the competing product, as shown in tables (2), (3).

**Table 2: The Amount of Materials Spent on the Tire Size 1200/24 and their Prices for the Research Sample Factory**

Productive Section	Raw Materials	The Amount Spent	Measruing Unit	Material Cost (in Dinars)
Preparation section	SBR rubber	4.107	Kg	13328
	Natural Rubber	34.828	Kg	113978.2
	Reclaim Rubber	0.044	Kg	36.18
	Carbon FEF	0.724	Kg	856.8
	Carbon GPF	0.736	Kg	880.6
	CARBON ISAF	6.361	Kg	7568.4
	SRF Carbon	7,620	Kg	9067.8
	Inox HB	0.376	Kg	2820.3
	CBS	0.179	Kg	1594.1
	Scores	0.023	Kg	71.4
	IPPD	0.295	Kg	2701.3
	IT MBTS	0.015	Kg	35.7
	OBTS	0.258	Kg	1439.9
	Renacit	0.031	Kg	523.6
	Risocinol	0.077	Kg	702.1
	Retarder	0.055	Kg	416.5
	Stearic acid	0.912	kg	1190
	Zinc oxide	1.572	kg	2808.4
	Paraffin wax	0.440	kg	453.32
	Deuterex Oil	2.541	kg	381.09
Calcium carbonate	0.407	kg	168.78	
Hexacotide	0.041	kg	23.64	
Sulfur	0.926	kg	438.86	
Formation section	Forming Section NY 1402 F 100	5.987	kg	49872.9
	NY 1402 F 75	1.977	kg	16469.6
	Banube	0.060	kg	1523.2
	Millican	0.040	kg	1428
	Iron wire	3.415	kg	4879
	Nylon wire	----	kg	----
	Total	74,047		235,657.67

Source: prepared by the researcher based on the data of the Planning Department

The quantity of materials spent and their prices will be clarified for the competing product, as shown in Table (3) as follows:

**Table 3: The Amount of Materials Spent on the 1200/24 Tire and their Prices for the Competing Product**

Productive Section	Raw Materials	The Amount Spent	Measruing Unit	Material Cost (in Dinars)
Preparation section	SBR rubber	3.4	Kg	11033.45
	Natural Rubber	32.42	Kg	106094
	Reclaim Rubber	----	Kg	----
	Carbon FEF	----	Kg	----
	Carbon GPF	0.854	Kg	1011.5
	CARBON ISAF	5	Kg	5950
	SRF Carbon	5.2	Kg	6188
	Inox HB	----	Kg	----

	CBS	0.156	Kg	1392.3
	Scores	0.03	Kg	95.2
	IPPD	0.26	Kg	2382.38
	IT MBTS	0.012	Kg	35.7
	OBTS	0.28	Kg	1570.8
	Renacit	0.028	Kg	464.2
	Risocinol	0.053	Kg	479.33
	Retarder	0.05	Kg	380.8
	Stearic acid	1.24	kg	1618.4
	Zinc oxide	1.68	kg	2998.8
	Paraffin wax	0.65	kg	669.5
	Deuterex Oil	3.245	kg	486.75
	Calcium carbonate	0.65	kg	269.75
	Hexacotide	0.08	kg	46.32
	Sulfur	0.926	kg	438.86
Formation section	Forming Section NY 1402 F 100	5	kg	50575
	NY 1402 F 75	1.251	kg	12649.7
	Banube	0.04	kg	1011.5
	Millican	0.05	kg	1785
	Iron wire	3.5	kg	4998
	Nylon wire	1	kg	1190
	Total	67.055		215815.24

Source: prepared by the researcher based on the data of the Planning Department

Through the above tables, we note that the amount of materials involved in the production of the tire size 1200/24 for the research sample product is (74.047) kg, while the Korean tire was 67.055) kg, and with regard to the cost of raw materials for the production of the tire for the research sample, it is (235657.67) dinars While the cost of the raw materials for the Korean frame amounted to (215815.24) dinars, which means that the cost of the frame for the research sample is higher, and by dismantling the Korean frame and identifying the quality and quantity of materials used, it was found that it includes materials that differ in terms of quality and quantity from what is in the frame. The research sample, and therefore this material can be used to reduce the cost of the framework for the research sample as follows:

The technology of building the frame can be developed, which aims to reduce the layers of fabric that make up the frame without affecting the durability, durability and other specifications, which leads to a reduction in its weight and cost by replacing one of its components (nylon fabric) with another type that is stronger than it in terms of tensile strength. Which is the standard in comparison between the types of fabric used in the manufacture of tires.

Reducing the number of layers leads to:

1. Savings in time and cost.
2. Savings in raw materials used for production.

Thus, the quantity of materials spent and their prices for the framework will be the research sample and the competing product after using the reverse engineering technique and replacing one of the components of the framework the research sample as shown in Table (4)

**Table 4: The Amount of Materials Spent on the 1200/24 Tire and their Prices for the Research Sample Product and the Competing Product**

Productive Section	Raw Materials	The amount spent		Measuring Unit	Material cost (in dinars) The research Sample competing product		Reduction amount
		The research Sample	competing product		The research Sample	competing product	
Preparation section	SBR rubber	4.107	3.4	Kg	13328	11033.45	
	Natural Rubber	34.828	32.42	Kg	113978.2	106094	
	Reclaim Rubber	0.044	-----	Kg	36.18	-----	
	Carbon FEF	0.724	-----	Kg	856.8	-----	
	Carbon GPF	0.736	0.854	Kg	880.6	1011.5	
	CARBON ISAF	6.361	5	Kg	7568.4	5950	
	SRF Carbon	7.620	5.2	Kg	9067.8	6188	
	Inox HB	0.376	-----	Kg	2820.3	-----	
	CBS	0.179	0.156	Kg	1594.1	1392.3	
	Scores	0.023	0.03	Kg	71.4	95.2	
	IPPD	0.295	0.26	Kg	2701.3	2382.38	
	IT MBTS	0.015	0.012	Kg	35.7	35.7	
	OBTS	0.258	0.28	Kg	1439.9	1570.8	
	Renacit	0.031	0.028	Kg	523.6	464.2	
	Risocinol	0.077	0.053	Kg	702.1	479.33	



	Retarder	0.055	0.05	Kg	416.5	380.8	
	Stearic acid	0.912	1.24	kg	1190	1618.4	
	Zinc oxide	1.572	1.68	kg	2808.4	2998.8	
	Paraffin wax	0.440	0.65	kg	453.32	669.5	
	Deuterex Oil	2.541	3.245	kg	381.09	486.75	
	Calcium carbonate	0.407	0.65	kg	168.78	269.75	
	Hexacotide	0.041	0.08	kg	23.64	46.32	
	Sulfur	0.926	0.926	kg	438.86	438.86	
Formation section	Forming Section NY 1402 F 100	3.14	5	kg	31761.1	50575	18111.8
	NY 1402 F 75	1.150	1.251	kg	11632.25	12649.7	4837.35
	Banube	0.060	0.04	kg	1523.2	1011.5	
	Millican	0.040	0.05	kg	1428	1785	
	Iron wire	3.415	3.5	kg	4879	4998	
	Nylon wire	---	1	kg	---	1190	
	Total	70.373	67.055		212708.52	215815.24	22949.15

Source: Prepared by the researcher

We notice from the above table that reducing the number of layers of fabric forming the frame with a fabric type (Nylon 1882) contributes to reducing the weight and cost of the frame, and the tensile strength of the new fabric compensates for the layers that have been reduced, so that a new frame is produced consisting of fewer layers of fabric with less weight, but with the same weight. The durability and quality of the traditional frame, as the frame of the Diwaniya factory consists of twelve layers and the type of fabric used is (nylon) 1402, and the tensile strength that one thread bears is 21 kg, it will be produced with eight layers and the type of fabric (nylon) 1882 and the tensile strength that one thread bears is 27 kg, and thus The weight of the tire decreased by (3.674) kg from the weight of the traditional tire, and the cost of one tire decreased by (22949.15) dinars, and thus the use of green target cost techniques and reverse engineering can contribute to reducing costs.

## **The Fourth Axis: Conclusions and Recommendations**

### **First: Conclusions**

1. The green target cost technology contributed to determining the amount of the required reduction, which was (22410) dinars, and therefore it is a technology that contributes to reducing costs.
2. The Green Target Costing technique is a useful tool to help determine the allowable cost of a product because customers are often unwilling to incur additional purchase costs for products.
3. The cost of raw materials for producing the tire for the research sample was (235657.67) dinars, while the cost of raw materials for the Korean tire was (215815.24) dinars, which means that the cost of the tire for the research sample is higher than the cost of raw materials for the competing tire.
4. The reverse engineering technique helped in reducing the number of layers of the fabric that makes up the frame with a fabric type (Nylon 1882), which contributed to reducing the weight and cost of the frame, but with the same durability and quality as the traditional frame, because the tensile strength borne by a single thread type (Nylon 1882) is higher than the tensile strength Which can be borne by one thread type (nylon 1402).
5. Reducing the number of layers leads to savings in time and cost, along with savings in the raw materials used for production.

### **Second: Recommendations**

1. Techniques that contribute to reducing the costs of the economic unit of the research sample should be used, including the green target costs and reverse engineering techniques.
2. The economic unit, the research sample, must seek to know the details and components of competing products in order to be able to develop its products in line with the capabilities of the competing product.
3. The economic unit should work to reduce the costs of its products through the use of appropriate technologies.
4. The economic unit, the research sample, must pay attention to market research to identify competitors' products.
5. The continuous pursuit of the economic unit, the research sample, to know the desires and preferences of customers and try to achieve them.

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