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The effect of employing value engineering as a target costing tool in achieving competitive advantage: Applied study

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***Abstract*---**The contemporary business environment needs to reconsider the traditional methods of costs, as it needs to apply contemporary methods and techniques to measure, define and display data related to costs and in proportion to the modern technological requirements and the intense competition factors that have become an inherent feature of the markets, so the economic units must work on the application of contemporary technologies Which contribute to reducing costs, managing, measuring and allocating them more accurately and justice As the technological development and the business environment are in constant change, and the economic units must keep pace with these developments by adopting techniques that go along with them in order to achieve competitive advantages that help the unit to ensure survival in the competitive market. In economic units, it can be formulated by the following question (Does the application of value engineering contribute to reaching the target cost and achieving competitive advantages to enhance the position of the economic unit in the competition environment) , and the research aims to clarify the role of value engineering In reaching the target cost and achieving a competitive advantage, the research is based on the hypothesis that employing value engineering as a target cost tool effectively contributes to achieving competitive advantages, and this is what will be addressed and applied in the General Company for the Battery Industry , which was established under Law No. (91) of 1969 In 1975, the battery factory was established after merging the General Company for the manufacture of dry batteries and the General Company for the manufacture of liquid batteries, and on 8/10/2015 it was merged with (the General Company for the Automotive Industry

and the General Company for Mechanical Industries) under the name of the General Company for the manufacture of cars and equipment, which is one of the companies Affiliated to the Iraqi Ministry of Industry and Minerals (Iraqi Gazette, Issue 4424, 2016), the company has worked since its establishment to manufacture batteries of various types and capacities. In its field of work, the company currently includes a number of laboratories, namely.

Keywords---employing value, engineering, costing.

Introduction

Cost accounting represents an integrated system that responds continuously to changes in the contemporary business environment to contribute to meeting the needs of management, where the administration needs detailed and accurate information that enables it to implement and develop the strategies used to ensure its survival in an environment of intense competition and the success of its business, and cost accounting is considered the system Which supplies or feeds the departments with the information necessary to meet the needs and achieve the administrative objectives and after the development of this system to be the primary objective for it represented in cost management by employing new techniques for strategic cost management , as it became necessary for the economic units to follow the technology that is in line with the unit's strategy and which enables them to improve cost management By detecting waste and waste while eliminating activities that do not add value to products and customers and improving the use of resources in order to achieve competitive advantages that contribute to the sustainability of its business. The competition ..

Method

Second: the concept of target cost: There are many studies and literature that dealt with the concept of target cost, some of them say that it is a method of cost management during the design, planning and development stage, others say that it is a method to reach the price of the product, and others see it as an approach or method that supports the unit's ability to compete , as defined by Blocher &Others, 2019: 14) It is a method directly resulting from highly competitive markets in many industries, and determines the desired cost of the product on a certain basis - a competitive price - so that the product earns a desired profit, and the cost is determined by that price . For cost management , managers can use it to determine the costs that the economic unit must bear to achieve an acceptable profit across the product life cycle . Entering the market, achieving growth and competing successfully with its competitors (Hilton & Platt, 2020: 682 .

Discussion

- Urging economic units to apply contemporary systems and technologies in managing and measuring their costs, including TC technology , as a contribution to keeping abreast of developments in the business environment . .

- Motivating the factory to pay attention to research, development and design activity and to carry out extensive studies and research that contribute to improving the quality and value of the battery as well as reducing its costs .
- Urging the factory to identify and analyze the activities that achieve the highest consumption of resources periodically to find out the places of waste and loss and work to reduce them to the maximum extent possible through the application of value engineering.
- Urging the factory to use the target cost technique and leave the old pricing system (cost + profit margin), as well as apply one of its tools, which is value engineering, which represents the key to reach the target level of cost to achieve excellence and stay in the competition market.
- We recommend the factory to restructure employees in order to reduce costs and achieve optimal utilization of human resources and work to take appropriate corrective measures to exploit idle energy by identifying and addressing the causes As well as paying attention to marketing activity because of its significant impact on increasing demand and thus raising the quantity of production.
- Focusing on the critical success factors of cost, quality, time and innovation because of their effective impact in achieving competitive advantages for the unit as well as satisfying customers' desires by providing products that meet their requirements of products.
- We recommend the factory to address the relevant authorities through the Ministry of Industry and Minerals in an attempt to issue decisions or legislation and activate laws to protect and support the national product.

Application side

The following is an explanation of the accounts used within the battery factory with their amounts:

Table 1
The expenses of the battery factory for the year 2021

The ratio	Amounts in dinars	account number	account name	T
%96.928	11,428,476,437	31	salaries and wages	1
%1.123	132,375,424	32	commodity supplies	2
%0.499	58,933,000	33	service supplies	3
%0.002	270,000	35	Purchase of merchandise for sale	4
%1.444	170,299,486	37	annihilations	5
%0.004	420000	38	Transfer Expenses	6
%100	11,790,774,347	**the total**		

Source: Prepared by the researcher

It is clear from the above table that the salaries and wages paid to workers constitute the highest percentage of the total factory expenses during ,2021 as they amounted to) 11,428,476,437). dinars (by %96.928 due to the increase in the number of workers in the factory As for the commodity and service

requirements, they are low due to the lack of demand for the local product and the intense competition that the factory is exposed to from imported products.

Fifth: The reality of production in the Babylon II factory, the study sample

The factory produces batteries of different sizes and the following table shows the cost of the liquid battery, where the standard battery capacity (60 amps) was chosen as it was approved in the measurement by the factory and a basis for comparison with the rest of the other produced batteries of different sizes, as follows:

Table 2
The total cost of one battery for the year 2021

Unit cost without salaries and deductions	Unit cost with salaries and deductions	the product	T
33457	422920	60amp liquid battery	**1**

Source: Prepared by the researcher based on the records of the Costing Division

The following table shows data on the output and available power of a standard liquid battery product.

Table 3
Actual and planned production and capacities of the standard liquid battery product

Actual ratio to available energy	Actual to Planned Ratio	Available energy	planned output	Standard Actual Output	measruing unit	the product
%2.356	%4.062	500,000	290000	11780	Number	**Standard liquid battery**

Source: The company's annual report for the year 2021

From the above, it is clear that there is a weakness in the actual production level of the company, as the ratio of actual production to the planned was 4.062% and the actual ratio to the available energy was 2.356%.

The researcher applied the target cost technique to the standard battery product for the laboratory sample of the research as follows:

Market study: The market study is the most important step in the application of the target cost technique, through which the needs and requirements of customers are determined, specifications and functions within the product are determined, and the following table Shows prices and specifications of competing products:

Table 4

preference	Security	the size	Weight / kg	the quality	selling price	country of manufacture	product name	T
very favorite	six months	excellent	14.3	excellent	0 6 000	Korea	INDIGO	**1**
favorite	one month	Very well	7 . 3 1	Good	50000	China	ROCKET	**2**
very favorite	three months	excellent	3.9 1	excellent	65000	Korea	HANKOOK	**3**
favorite	Three months	excellent	14	Very well	57000	Thailand	EXPRESS	**4**
Acceptable	Month	Very well	14.8	Good	48000	Turkey	SOLITE	**5**
Acceptable	Month	very good	14.5	Good	50000	Turkey	SMART	**6**

Source: Prepared by the researcher based on personal interviews with some sales agents specialized in selling batteries

Determine your target selling price: In order to determine the target selling price, it is necessary to know the selling prices of competing and similar products. For the above, a survey was conducted in the local markets in order to identify the selling prices of batteries with a capacity of (60 A) Thus, the target price will represent the average prices of the competing products, i.e:.

Target price 330,000 = ÷ 55000 = 6dinars

Determine your target profit: The Babylon II laboratory , the research sample, seeks to achieve a profit margin of 10% , so the target profit is:

Target Profit = Target Selling Price x Target Profit Margin Ratio

55000x 10% = 5,500 dinars

Determine your target cost : The process of determining the target cost is carried out by applying the following equation:

Standard battery product target cost = target selling price – target profit
49,500 = 5,500 - 55,000dinars_ _

Calculating the current cost of the product : By looking at the cost accounts records, it was found that the battery factory calculates the cost of the battery on the basis of (direct raw materials costs, and the wages of workers involved in the production process (plus a profit margin , .the researcher B Determining the total cost of the standard battery after adding the costs that were not calculated by the laboratory as in Table.(5)

Table 5
The total cost of the standard liquid battery

Total amount	Sub amount	the cost	T
	385903	salaries and wages	1
	5060	extinction	2
	503	Other expenses	3
391466		Total fixed costs	4
	2005	Raw materials and packaging mod	5
	1077	backup tools	6
	2160	Other expenses	
	5242	Total variable costs	8
396708		Manufacturing cost(8+4)	9
927		Administrative and marketing costs	10
397635		Total Cost(10+9)	11
36000		selling price	12
)361635 (		Loss per battery	13

Source: Prepared by the researcher based on the company's report for the year 2021

Determine the target reduction : The target reduction is calculated by applying the following equation:

Target Reduction = Current Product Cost – Target Product Cost
397635 = 49,500 – 348,135 dinars

Achieving the target cost reduction : After the gap was diagnosed between the current costs and the target cost of the battery product capacity (60 A (In this step, one of the target cost tools , represented by value engineering, must be used in an attempt to reduce costs and close the gap . The steps of this tool will be applied as follows:

- **The stage of pre-value studies** After all the information about the liquid battery product , its costs , its competitive position and the amount of the gap is known , an engineering team will be formed as a first step It is essential to carry out all the subsequent steps, and a team with multiple specialties and high expertise in their field of specialization is selected In an effort to achieve the target cost target.
- **Value study stage :** This stage consists of several steps that the value engineering team will try to implement, namely :
- **Information collection :** In this step, integrated information about the product is collected and documented in a form that includes the product's characteristics, price, costs, competitors within the market, its sales centers, production quantities and sales in the last year ,and its target cost.
- **Activities value analysis :** Value engineering analyzes jobs .Instead, the researcher will rely on analyzing the value of the activities that go into the battery industry to benefit from them as inputs to extract the value index for

each activity, which can be used in the creativity stage according to the following equation:

Activity value index = Activity importance ratio / Activity cost ratio

Table 6
Value index for each activity

value index	%activity importance	Activity cost percentage	Activity cost	Activity name
15.61	9	0.58	2293	**Research and development activity**
11.74	7	0.60	2371	**design activity**
0.60	5	8.34	33151	**production control**
0.33	7	21.04	83648	**Quality Inspection and Inspection Activity**
0.94	9	9.62	38269	**Machine preparation activity**
7.81	15th	1.92	7639	**Material pulling and moving activity**
0.98	31	31.72	126,121	**manufacturing activity**
0.77	1	1.31	5194	**censorship activity**
0.79	2	2.55	10129	**financial activity**
0.71	8	11.23	44671	**Regular maintenance activity**
0.22	1	4.62	18362	**storage activity**
0.91	3	3.30	13118	**Marketing activity**
0.63	2	3.19	12669	**Administrative activity**
	100%	100%	397635	**the total**

Source : Prepared by the researcher

The above table shows us that there are ten activities whose results are less than one, which means that the costs of these activities are higher than their importance and therefore more focus should be given to them in the stage of creativity in order to reduce them so that their cost is commensurate with their importance , in other words, the more the indicator is Less than one The work

team must focus on the costs of that activity in an attempt to find solutions to reduce them.

- **Creativity :** It is an important step to present and generate creative ideas that contribute to solving problems, reducing costs and adding advantages that distinguish the product of the economic unit from the products of competitors. Relying on the data of the previous step , a number of ideas and suggestions were reached, as follows:
  - Or not: Adopting the actual need for the preparation of employees in each activity with the redistribution of workers to the four laboratories
  - secondly: The use of very pure lead and degassed containers of oxygen to transport the panels and new molds for casting.
  - Third: Re-running the production lines for Al-Noor and Foundry plants.
  - Fourth: Opening marketing centers in all governorates and intensifying advertising campaigns to introduce the local product.
  - Fifth: Replacing the four tensile elements (antone - arsenic - tin - copper) with calcium.

Evaluation

In this step , the ideas presented in the previous step are evaluated to determine their feasibility for the product. The research sample is as follows:

First proposal: Adopting the actual need for the preparation of employees in each activity with the redistribution of workers to the four laboratories

Through the researcher's field experience and review of the reality of the factory in general and the Babylon II factory in particular, it was found that there are a large number of redundant workers who do not add any value to the product. On the cost of the battery and table (7) shows the actual need of employees for each activity, based on the data of the records of the human resources department and the opinions of the factory engineers and the planning department.

A battery and the amount of reduction according to the proposal

Reduction amount	The salary amount allocated to the 60 A battery after the reduction	The number of employees after the reduction	Current number of employees	The salary amount allocated to the battery in dinars	Activity name
4882732.98	2929639.79	3	8	7812372.77	Research and development activity
4603999.88	3452999.913	3	7	8056999.80	design activity
91076722.44	20699255.1	10	54	111775977.54	production control
225713423.49	57108215.58	21	104	282821639.07	Quality Inspection and

					Inspection Activity
99381957.34	28986404.22	14	62	128368361.56	Machine preparation activity
12688036.67	12688036.67	6	12	25376073.34	Material pulling and moving activity
261796717.68	161577661.7	79	207	423374379.37	manufacturing activity
2878227.94	14391139.71	5	6	17269367.65	censorship activity
12750514.09	21250856.82	10	16	34001370.91	financial activity
110548057.60	39630435.74	19	72	150178493.34	Regular maintenance activity
44460038.06	14820012.69	7	28	59280050.75	storage activity
21636490.38	21636490.38	10	20	43272980.76	Marketing activity
18529343.98	24705791.98	12	21	43235135.96	Administrative activity
910946262.53	423876940.28	199	617	1334823202.82	the total

The source was prepared by the researcher based on the 4ABC system and the opinions of the engineering team

To clarify the figures in the above table, we would like to show that the actual need for preparing workers was according to the opinions of engineers and specialized staff in the planning department inside the factory .As for the amount of reduction, it was calculated according to the following equation:

Salary amount for the activity after the reduction = the amount of salaries for the activity before the reduction / number of employees before the reduction * number of employees after the reduction

It is clear from the previous table that the reduction achieved through the application of the first proposal is (264502.4) dinars, that is, the target reduction was achieved by 75.979%.

Note: The amount of reduction per unit was extracted by dividing the reduced amount for each activity in Table No. (36) by the number of units produced, which amounted to (3444) units.

second proposal: The second proposal: the use of very pure lead and vacuum containers of oxygen to transport the panels and new molds for casting .)competitive advantage .(This proposal will make the battery more reliable and reduce the percentage of damage and the weight of the panels, as most of the damage is caused by the quality of lead and the oxidation of the panel when exposed to air. 15% As for their costs, their costs will be reduced by 8% for the manufacturing activity and 12% for the inspection activity. As for the activities related to materials, their cost will be reduced by 9%, and reducing the weight of panels and damage will contribute significantly to reducing the cost and quantity

of raw materials used in addition to reducing the weight of the battery and reducing the pressure on the plastic case The following table shows the cost savings achieved from implementing the proposal: (Source :Technical Affairs(

Table 8
The cost of panels and the achieved reduction according to the second proposal

The amount of the reduction in dinars	**The cost of the unit before the reduction in dinars**	**board type**	**T**
338.5	6770	positive plate piece	**1**
394.5	5891	piece negative plate	**2**
633	12661	**the total**	

The source is prepared by the researcher

Table 9
The cost of activities and the achieved reduction according to the second proposal

The amount of the reduction in dinars	The cost of the activity in dinars	Activity	T
2652.08	33151	production control	1
10037.76	83648	Quality Inspection and Inspection Activity	2
3061.52	38269	Machine preparation activity	3
687.51	7639	Material pulling and moving activity	4
10089.68	126,121	manufacturing activity	5
26528.55	288828	the total	

The source is prepared by the researcher

The previous table shows that 7.62% of the total target reduction has been achieved, in addition to the fact that the time required to produce the battery will be reduced due to the decrease in the time required for inspection by 15% and the decrease in the amount of materials used, and this confirms the achievement of the dimensions of competitive advantage.

The third proposal: Restarting the production lines of Al Noor and Foundry factories

This proposal represents a fundamental turning point in the factory costs, given that most of the administrative costs are charged to the products of the Babylon I and II laboratories only, in addition to providing the entire factory's needs of lead through the foundry, in addition to the fact that the laboratory is very possible to enter the field of competition within the dry battery industry According to the opinions of the engineering team, this proposal will reduce the costs of administrative activities by 15%, while the costs of maintenance activity will

decrease by 20%, while the costs of marketing and warehousing activity will decrease by 18% of the total costs of activities charged to the products of the Babylon II plant. The following table shows the amount of the reduction . (Source: Technical Affairs and Engineering Team)

Table 10
The amount of the reduction for administrative and marketing activities according to the third proposal

The amount of the reduction in dinars	Amount of activity in dinars	Activity	T
343.95	2293	Research and development activity	**1**
355.65	2371	design activity	**2**
779.1	5194	censorship activity	**3**
1519.35	10129	financial activity	**4**
8934.2	44671	Regular maintenance activity	**5**
3305.16	18362	storage activity	**6**
2361.24	13118	Marketing activity	**7**
1900.35	12669	Administrative activity	**8**
19499	108807	**the total**	

The source was prepared by the researcher based on the ratios in the third proposal. The previous table shows that (5.6%) of the total amount of the targeted reduction was achieved

Fourth suggestion: Open marketing centers in all governorates and intensify advertising campaigns to introduce the local product. (competitive advantage)

This proposal is considered a key to raising the quantity of production and increasing the percentage of sales. It also contributes effectively to introducing consumers to the local product and raising the levels of demand for the locally made battery. Based on this proposal, the engineering team sees an increase in the percentage of demand for the local product by 15-25% as an initial percentage. According to the previous proposals and the improvements that occurred in the cost, quality and delivery time of the product, which means raising the produced quantities to (5166-8610) units during the year, and since the costs will be distributed to the products, this means that the cost of the product will decrease with the increase, especially with the fixed costs remaining the same and based on This proposal is expected by the engineering team that the reduction will be 6% of administrative activities and 8% of production activities, and the following table shows that reduction:

Table 11
The reduction achieved according to the fourth proposal

Reduction amount	Activity cost	Activity	T
137.58	2293	Research and development activity	**1**
142.26	2371	design activity	**2**
2652.08	33151	production control	**3**
6691.84	83648	Quality Inspection and Inspection Activity	**4**
3061.52	38269	Machine preparation activity	**5**
611.12	7639	Material pulling and moving activity	**6**
10089.68	126,121	manufacturing activity	**7**
311.64	5194	censorship activity	**8**
607.74	10129	financial activity	**9**
2680.26	44671	Regular maintenance activity	**10**
1101.72	18362	storage activity	**11**
787.08	13118	Marketing activity	**12**
760.14	12669	Administrative activity	**13**
29634.66	397635	**the total**	

The source is prepared by the researcher

Fifth suggestion: Replacing the four tensile elements (antimony - arsenic - tin - copper) with calcium

Through the investigation, it was found that the lead alloy does not need the four tensile materials, and it is possible to compensate for them with calcium. Therefore, there are several benefits, the most important of which is that calcium is more available and less expensive, as well as being less dangerous, increases the efficiency of the battery and increases its useful life, and this proposal achieves a reduction in costs and increases the quality And the reliability of the battery by raising the generation efficiency of the panels, reducing the temperature of the battery, not causing the evaporation of liquids inside it, and increasing its resistance to overcharging. The following table shows the reduction in costs:

Table 12

The cost is in Iraqi dinars	Quantity in kilograms	Subject	T
5107	0.151	the athemic	**1**
2431	0.063	arsenic alloy	**2**

465	0.07	tin	**3**
931	0.04	copper	**4**
8934		**total summation**	
631	0.05	Calcium	**begs**
8303	**discount amount**		

The source is prepared by the researcher

Development

After the results of implementing the ideas presented in the previous step have been determined, this step studies the factory's ability to implement those ideas in the event that all the capabilities necessary to carry out the change process are available, and this step translates the ideas into applicable practical procedures, and since the infrastructure for operation Developing the battery, improving activities and excluding non-value adding costs , because the factory has all the capabilities to implement those proposals from human resources, expertise, machines and machines , the process of applying the previous proposals is possible.

Presentation

In this step, a summary of the results achieved through applying the proposals of the value engineering team to the administration is presented, so that those results are approved by the Board of Directors or the relevant authorities in the ministry. The following table shows the achieved results in accordance with the previously mentioned proposals:

Table 13
Summary of the results achieved from the application of the proposals

net cost	The reduction is according to the fourth proposal	third proposal	The reduction is according to the second proposal	The reduction is according to the first proposal	Activity cost	Activity	T
393.72	137.58	343.95		1417.75	2293	Research and development activity	1
536.27	142.26	355.65		1336.82	2371	design activity	2
1401.80	2652.08		2652.08	26445.04	33151	production control	3
1380.24	6691.84		10037.76	65538.16	83648	Quality Inspection and Inspection Activity	4
3289.41	3061.52		3061.52	28856.55	38269	Machine preparation activity	5

2656.27	611.12		687.51	3684.10	7639	Material pulling and moving activity	6
29926.33	10089.68		10089.68	76015.31	126,121	manufacturing activity	7
3267.54	311.64	779.10		835.72	5194	censorship activity	8
4299.67	607.74	1519.35		3702.24	10129	financial activity	9
957.80	2680.26	8934.20		32098.74	44671	Regular maintenance activity	10
1045.70	1101.72	3305.16		12909.42	18362	storage activity	11
3687.31	787.08	2361.24		6282.37	13118	Marketing activity	12
4628.33	760.14	1900.35		5380.18	12669	Administrative activity	13
57470.39	29634.66	19499	26528.55	264502.40	397635	the total	
(633)	The amount of the reduction for the materials is subtracted according to the second proposal						
(8303)	The amount of the reduction for materials shall be subtracted according to the fifth proposal						
48543.39	Current cost after applying value engineering technique						

The source was prepared by the researcher based on tables No. (7), (8), (9), (10), (11) and 12. above, it is clear that the total cost that was reached after performing the value engineering is (48534.39) dinars , with a reduction of (349100.61) dinars from the cost calculated according to the cost system based on the four-stage activity , amounting to (397,635) dinars , and it is noted that The value engineering team was able to reach 100.277 % of the target reduction value , and here the management decision remains to price the product at less than the target price to attract customers and improve the market share of the local product because the cost reached is less than the target cost or to maintain the current price Noting that the product has an additional advantage over competing products after the battery became lighter, safer and more reliable than competitors' products, as well as its long life.

Post-value studies

- **Implementation :** After approval of the proposals from the higher management in the factory It is like The starting point to start producing the battery according to the proposals of the engineering team and the implementation is carried out by those in charge of the production line after clarifying the procedures for all workers in the plant and the method of implementation, with an indication of all the benefits envisaged from the development process of the battery In order to motivate employees to implement it.
- **Follow-up :** When the proposals enter into force, the battery factory must follow up the process to verify the progress of work according to what is planned, and that all procedures and operations are on the right track for

them, as well as address any deviations that may occur in the process of implementing these proposals before they escalate.

Third : Achieving the competitive advantage

After calculating the actual cost of the battery capacity (A60) after applying value engineering, it decreased to reach (48534.39) dinars, where the total reduction amounted to (349,100.61) dinars for each battery , so the factory can sell the battery at a price of (54000) dinars by adding the target profit margin of (5500) dinars to the current cost after the reduction , Thus, achieving a profit margin of 11.26 ,% taking into consideration that the factory 's product has a higher quality level than the competitors ' products in the market and as we mentioned earlier , which makes the factory compete This is reflected in the position of the product, market share, level of profits and demand for the product, which are indicators of the factory achieving competitive advantages.

Conclusions

The following is a summary of the most important conclusions:

- The inability of traditional cost systems to achieve the objectives of the economic unit and to manage its costs in a way that achieves efficiency and justice in measurement and allocation
- The target cost of contemporary techniques for pricing and reducing the costs of products during all stages of production and focuses on the stage of research, development and design while maintaining or improving the quality of products.
- Target cost contributes to determining the cost gap between the target level and the actual level, which contributes to determining the decisions to be taken to achieve that reduction , and value engineering is one of the arms of the target cost to achieve the target cost reduction.
- The research sample suffers from not applying any of the cost management techniques such as (target costing), the company still follows the traditional method of pricing (cost plus profit margin).
- The research sample factory suffers from a very large functional slack and a complete stoppage of the production lines in the Al-Noor factory and a very small production of the foundry, which led to the charging of the production process with very large additional costs. It also suffers from a significant decrease in the level of production and the weakness and absence of the role of the marketing department.
- The target cost was (49,500) dinars, and the cost gap between it and the current cost was (348,135) dinars ,which represents the targeted reduction amount.
- The application of the target cost technique and one of its tools (value engineering) in the research sample removed and reduced the non-value adding activities and contributed to reducing the cost of one battery from) 397,635 (dinars calculated according to the current cost system for the battery factory to (48534.39) dinars calculated after applying the technology The target cost was reduced by 61,349,100 dinars, thus

achieving the target cost and enabling the factory to remain in the competitive market.

Conclusion

- Urging economic units to apply contemporary systems and technologies in managing and measuring their costs, including TC technology , as a contribution to keeping abreast of developments in the business environment . .
- Motivating the factory to pay attention to research, development and design activity and to carry out extensive studies and research that contribute to improving the quality and value of the battery as well as reducing its costs .
- Urging the factory to identify and analyze the activities that achieve the highest consumption of resources periodically to find out the places of waste and loss and work to reduce them to the maximum extent possible through the application of value engineering

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