



## Proposed conceptual model for the application of the attributy Based costing system to rationalize production costs at Algerian economic institutions - applied study at a Cardboard manufacturing plant

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### Abstract:

The aim of this study is to build a conceptual model for applying the costing system based on the ABCII specifications in order to rationalize the cost of the Algerian product in light of the modern manufacturing environment, The two researchers chose GOURA EMBALLAGE Corporation for the corrugated cardboard industry as a model in order to rationalize and reduce the cost of medium-sized carton boxes. To implement this study, we prepared personal interviews with the head of the production and sales department, noting that the institution owns 06 production lines, and the two researchers chose the 9PA production line with a flow of 800,000 Medium sized cans units per month.

This study reached important results, including that the application of the costing system on the basis of specifications contributes significantly to the rationalization of production costs. as It does not rely on modern methods of management to reach the real cost of its products in a scientific, accurate and correct manner.

For this reason, the researchers are certain that the institution under study does not take into account the modern systems of strategic cost management, including the costing system based on activities ABC and the costing system based on specifications ABCII.

**Key words:** ABC system, ABCII system, cost accounting, rationalization of production costs, economic enterprise.

**JEL CLASSIFICATION:** M11, M41, J01.

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## **Introduction:**

Achieving competition, whether at the national or global level, is an advantage that all major institutions in their field boast of thanks to the technological progress and development that these institutions have witnessed. We find among them the largest Algerian industrial companies that seek to acquire as much as possible of the local and even international market, and in the light of competitive conditions that are more dependent on the satisfaction of customers' needs and desires with various products that are compatible with international quality standards and at reasonable prices. This is in complete contrast to the use of traditional costing methods that do not accurately reflect the cost of the product or service provided. Therefore, there is a need for institutions to review their accounts with respect to traditional applied costing systems and replace them with modern strategic cost management systems, including the ABCII specification-based costing system, which is based on the idea of translating customer needs and desires into a product that has the required specifications. It is also a system based on the study of market realities by relying on the idea of producing what can be sold and not selling what can be produced. Therefore, specifications are the basic pillar that drives the consumer to differentiate between types of products and the choice of the product that has the specifications that meet his needs and desires and the lowest possible price for him to pay.

## **Study problematic:**

Based on what we have presented above, we can pose the following main problem:

"To what extent is the proposed conceptual model for the application of the costing system based on ABCII specifications in the rationalization of production costs in Algerian economic institutions compatible"?

This problem includes several sub-questions, namely:

- Does the application of the costing system based on specifications lead to the rationalization of production costs?
- Is the environment of the Algerian industrial enterprises ready to apply modern systems for strategic cost management, including the costing system based on ABCII specifications?
- Does the conceptual model for applying the costing system based on specifications match the environment of GOURA EMBALLAGE for manufacturing the corrugated cardboard?

## **Study hypotheses:**

### **First hypothesis:**

Building a conceptual model for the application of the attributy based costing in Algeria's economic institutions contributes to rationalizing production costs in a rational manner.

### **Second hypothesis:**

The internal environment of GOURA EMBALAGE contributes greatly to being able to build a conceptual model that contributes to knowing how to rationalize production costs by applying the costing system based on the attributy based costing specifications.

## **Objectives of the study:**

Through this study, we seek to achieve the main objective, which is to prepare a conceptual model for the application of the cost system based on the attributy based costing specifications which corresponds to the internal environment of GOURA EMBALAGE in the rationalization of production costs, by which the actual cost of the product is determined according to the total specifications.

## **Study Methodology:**

Our study relied on the inductive approach in terms of the theoretical framework of the study. As for the applied study, the researchers relied on the data analysis methodology that is appropriate to the research topic.

## **Structure of the study:**

With the aim of achieving the reality of the application of the costing system on the basis of specifications and the possibility of its application in the studied institution, knowing the possibility of rationalizing the production costs using the attributy based costing.

This study was divided into two axes, the first one is the theoretical foundation of the costing system based on specifications, while the second axis includes an applied study through the construction of a conceptual model to rationalize the production costs of GOURA EMBALAGE and access to the most important results.

### **1. the theoretical foundation of the study**

The emergence of the idea of specifications for the first time was in the books of marketing science in the late sixties of the last century following marketers in developing strategic marketing plans based on a study of reality of the market, which is based on the possibility of determining the needs and desires of customers by specifying the specifications and characteristics that the customer wishes to be available in a specific product, The idea of analyzing basic specifications as a modern approach to cost management is one of the recent trends of interest to many cost accounting researchers (Ahmed Al-Sayed, 2019, p. 460) On this basis, we can approach the definition of the

costing system on the basis of specifications in the theoretical part of this study, as for evidence in practice; it will be presented in the application section of this research.

## **1.1. The establishment and definition of the costing system based on the attributy based costing specifications**

### **1.1.1. The establishment of a costing system based on attributy based costing specifications**

The beginnings of the emergence of a specification-based costing system can be traced back to the nineties of the twentieth century when Bromwich developed strategic management accounting in 1990, taking into account the benefits provided by the product to the customer and its contribution to the achievement of a competitive advantage, (Kadhim & Al-Ghezi, 2021, p. 67).

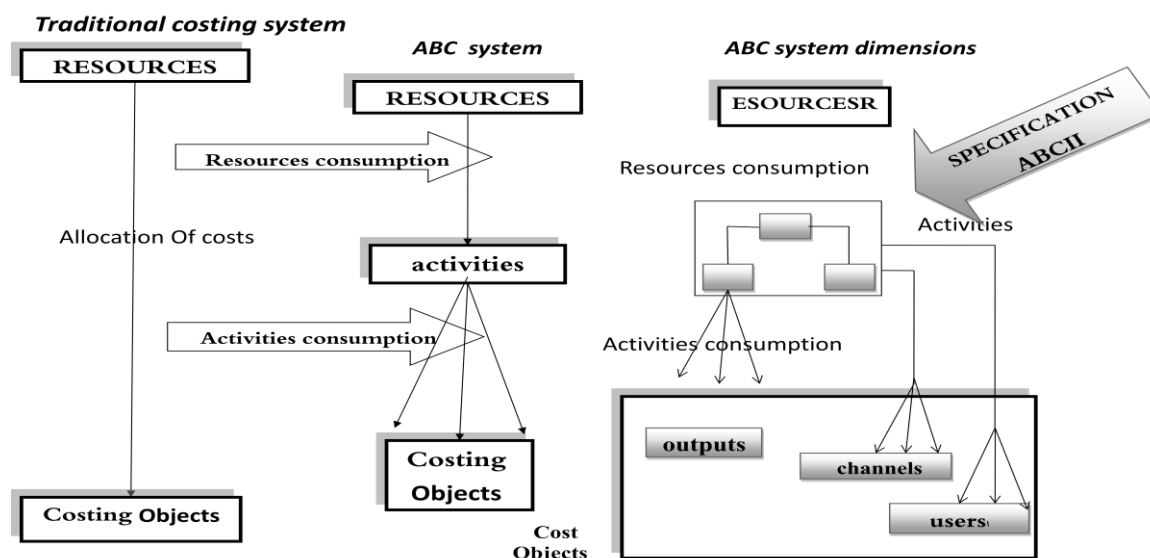
The specification-based costing system is symbolized by the symbol attributy based costing, which is the abbreviation of the term Attributy Based Costing. As for (II), it means the second digit in Latin and was developed as a distinction for this term to distinguish it from the Activity Based costing system.

This system came as an expansion of the ABC system (Al-Shawabkeh, 2018, p. 10), as a result of the focus of this system on the internal aspects of the cost only without taking into account the cost of customers, and this led to the existence of deficiencies in the application of the ABC system, especially in the case of the introduction of a new product or the development of a product or the maintenance of the market share of the institution, especially since the latter is based on satisfying the needs and desires of consumers, and all this can be achieved in the case of applying more advanced systems than the ABC system, which is concerned with all these aspects, which is the application of a costing system based on specifications that addresses these shortcomings and provides a

product that benefits from specifications according to customer demand (Mahmoud & Mahmoud, 2014, p. 117)

The following figure shows the first appearance of the attributy based costing specification-based costing system according to the development of Darwin's cost accounting systems as follows:

**Figure 1.** The evolution of cost accounting systems according to Darwin's



Source: M Gary Cokins, *Performance Management: Making it Work*, Journal of Corporate Accounting & Finance, CANADA, November 2004, p: 33.

### 1.1.2. Definition of the attributy based costing

Many opinions differ in giving a single definition of specification-based cost system, thus Welker considers that attributy based costing approach (ABCII) is a system based on a detailed analysis of the costs and benefits of products and services by transforming customer needs and wants into specific specifications in a particular product such as performance, reliability, durability, and aesthetics (Sorour & Dergham, Costing on specifications and costing on activities/ comparative study, 2016, p. 522) Coins' also see it as an accounting system that focuses on the costs of the final product specifications. (El ardawi, 2020, p. 98). According to what (Al-Shami, 1999, p. 459) sees, the specification-based costing system is a system based on using the product specifications that are consistent with the needs and desires of customers and consumers as the basis for determining and measuring the cost of products, and the characteristic of each product specification is determined according to each level of Achievement Levels at which the cost of the product is the sum of the costs of all its specifications, and the cost of each characteristic is the cost of each Achievement Level of this characteristic.

Therefore, the two researchers support many experts and researchers who considered the attributy costing system to be a system based on the division of the product into a set of specifications and to consider each of these specifications as a stand-alone product, and determine the final cost of the product based on the sum of the costs of each of its specifications.

## **1.2. Elements of an attributy based costing**

The specification-based costing system is based on several important considerations during its application process, and these considerations are represented in: (Sorour, 2019, p. 320).

### **1.2.1. Operations Analysis:**

Analyze processes by drawing a process map, and this leads to identifying areas that improve operations, which leads to the elimination of all wasteful outlets in depleted resources within operations.

### **1.2.2. Analysis of activities:**

Activities are analyzed on the basis of the identification of all the activities that consume resources that are involved in the realization of the basic specifications of the product by identifying the resources needed to perform the activities with the separation between value-added activities and non-value-added activities.

### **1.2.3. Analysis of realization levels for each product specification:**

The total cost of the final product is determined based on the cost of the achievement levels for each product specification.

## **1.3. Reasons that led to the emergence of the costing system based on attributy costing specifications**

The reasons and motives that led to the emergence of the costing system based on specifications are many, and all of them benefit the institutions, especially the institutions that were suffering from a large increase in production costs at that time, and for this reason this system came as a remedy for many of these problems through its greater focus on the customer on the one hand and a studying the market on the other hand. So it is a system based on meeting the needs and desires of customers by providing a product with high quality specifications that meet the customer's desires and needs at a lower cost.

He considers that each level of realization of each product feature is an independent product, and the final cost of the product is determined by the sum of the activities that each specification involves at that level of realization (Mahmoud & Mahmoud, 2014, p. 118) and among these considerations that led In institutions to look for the appropriate alternative to get rid of the additional and non-value added costs, we quote: (Al-Shawabkeh, 2018, p. 30) (Al-Mahmoud, 2007, p. 177)

The existence of a set of basic product specifications consistent with the needs and desires of customers;

- The existence of a number of realization levels for each product characteristic;
- The possibility of determining the optimal combination of realization levels in matrix form in order to obtain the best return for the economic unit;



- Excluding the creation of stocks of raw materials and finished products, in order to achieve the production of products with the best possible design, the lowest cost and the best quality;
- Reducing the time between customer order and product delivery by eliminating non-value- adding and unnecessary activities;
- Work to produce a defect-free product;
- Use the best and most modern means of production during the production phase, which contributes significantly to further reducing time and costs;

#### **1.4. Requirements for the application of the attributy based costing**

The specification-based costing method is the set of different specifications considering that each specification represents an independent product, and it can be implemented in several realization levels,

The customer's benefit varies according to the level of realization that each specification achieves, and the levels of realization are determined according

to the customer's needs and the price he can pay in exchange for obtaining these benefits, (Bromwich, 1990, p. 30)

On this basis, the basic requirements for the application of costing technique can be determined based on the specifications identified by Bromwich, which are 4 requirements:

- The existence of a set of basic product specifications that correspond to customer needs and requirements
- The existence of a number of realization levels for each of the basic product specifications;
- The ability to measure the cost and performance of the product at each level of realization;
- The ability to determine the optimal combination of realization levels in matrix form to achieve the best performance for the organization while meeting customer requirements.

Many basic steps for applying the attributy based costing emerge from these requirements,; (Ahmed Al-Sayed, 2019, p. 462)

Basic product specifications are determined by identifying the needs and wants of customers and consumers;

- Determining the levels of achievement of each product feature to focus on the levels that meet the needs and wants of customers and consumers, while identifying activities that add value and those that do not add value to the final product;
- Define the set of processes and activities required to define the specification by defining the activities to identify the inputs and outputs of each process;
- Determine the resources required to perform the activities and operations;

- Determine the costs of each level of achievement;
- Determine the final cost of the product by gathering the costs of each of its specifications.

The following table shows the product specification cost matrix according to the model provided by Perren and Berry Partridge.

**Table 1.** Shows the matrix of the costs of specification of the product according to the model of Perren and Berry Partridge.

Cost Categories specificans	Costs associated with production volume	Costs associated with activity	Capacity-related costs	Fees related to the decision	The total cost of the specification
Specification					
specification					
specification					
specification					
Total cost per category					

Source: Siham Abdel-Ali Obaid et Thaer Sabri Al-Ghabban, **cost technology based on attributy based costing specifications and its impact on contracting contracts, an applied study in Al-Mansour General Construction Contracting Company**, Journal of Accounting and Financial Studies, special issue, 2019, p: 7.

### 1.5.A costing system based on attributy based costing specifications in the rationalization of production costs

What is meant by the term production cost rationalization is the process of good control of the economic resources of the company in order to produce high quality products at the lowest possible cost by imposing effective control over the costs of the economic unit in order to discover all deviations and waste points and work to correct them.

Thus, there is a fundamental difference between the process of reducing production costs and the process of rationalizing production costs.

This difference appears through the fact that cost reduction means the reduction of the largest possible amount of resources used, while cost rationalization, which is the process of eliminating all outlets of waste and deviations in order to correct them as much as possible, (Jawad & Saad, 2020, p. 177)

We can say that the rationalization of production costs in the case of the application of modern strategic cost management systems is completely different from the reality of the application of traditional cost accounting systems.



Therefore, through this study, we have demonstrated how to rationalize production costs according to modern strategic cost management systems, including the costing system based on attributy based costing specifications, which is considered one of the systems that help the organization to rationalize its costs and also to reduce the costs of its products as much as possible, since this system is considered one of the systems that control the costs of product specifications in a rational and rational way.

## **2. The second axis: the applied study**

### **2.1.A brief historical overview of the studied GOURA EMBALLAGE institution:**

GOURA EMBALLAGE was created in 2005 AD in the form of a sole Proprietorship (single person company EURL) and the legal form of the EURL was changed in the year 2010 AD by the General Manager in his capacity as the sole owner of the company with an initial capital of (100) one hundred thousand Algerian dinars, and after multiple increases it has reached about 335 million Algerian dinars. Its head office is located on the national road, Boumia n°05, municipality of Omar, state of Médéa. This company also includes a total area estimated at 3500 square meters divided between a production unit and various services: management, trade, tables, inventory, supply ... etc,

Its main activity is the manufacture of corrugated cardboard. This company also manufactures products that adapt to the needs of customers. The company also declares itself ready to adapt to the changes that may occur in the needs and tastes of customers (all modifications, including: dimensions, prints, etc.. And the technological development by collecting all the samples and presenting them on site in a few minutes according to the customer's requirements, and despite the young age of this company, it has been able to establish itself in the local market and strengthen its position in the field of food packaging, ceramics, agricultural and pharmaceutical products, and others ... etc. from year to year thanks to the experience acquired by the founder in the field of cardboard industry. (<https://gouraemballage.com/presentation>, 2017)

**Table 2.** shows the production capacity of GOURA EMBALLAGE products

Number	Number Production line	Monthly productive capacity
1	PA6	600000unit
2	9PA	800000unit
3	TM2	400000unit
4	VEGA	1060000unit
5	WOOKIL	180000 unit
6	PORTE FUILLE	1200000unit

**Source:** Prepared by the two researchers based on the information provided by the institution

This institution relies on (06) six production lines with varying production flows and uses corrugated cardboard as a basic (raw) material in the process of manufacturing cardboard packages such as: American boxes, trays, archive boxes, chick cages, pastry

boxes, etc., and some production lines share with each other the production. Some types of cans, as shown in the above tables. This establishment is characterized by the production of cardboard cans of all sizes, small, large, and medium, in various sizes, according to what the customer requests and what is in accordance with his requirements. The number of employees in this institution is 265 workers, of whom 200 are specialized in production activities, while the rest of the workers are specialized in administrative work. According to all this information, the two researchers chose the 9PA production line, in which medium-sized dough boxes are produced. The final cost of this type of boxes was determined at 117.26 DZD. According to the traditional system applied and compared to the new cost, which we will reach by applying the attributy costing system

## **2.2. Steps to apply the attributy based costing at GOURA EMBALLAGE**

### **2.2.1. Identify customers' needs and desires**

Customers' priorities and requirements are determined by different categories depending on the degree and amount of their preference and have an impact on their degree of satisfaction with a product or service with the specifications they wish to provide in this product such as (design, shape, size, color, weight, quality). This is determined by the relative importance of each product description, which is determined by the opinions of practitioners of cost accounting in the enterprise. (Franceschini, 2002, p. 48)

### **2.2.2. Determining basic product specifications and achievement levels for each feature:**

- **Box design:** according to the degree of customer preference (internal design, external design) ;
- **Size of the box:** It comes in different sizes to meet different uses.
- **Durability of the box:** it is of high quality to suit its multiple uses.
- **The color of the box:** The color has a major role in attracting the attention of customers, so the company uses 4 primary colors (black, red, blue, green) and other secondary colors.
- **The shape of the box:** according to the needs and desire of the customer depending on the type of product to be packed inside the box;
- **The weight of the box:** The institution relies on different weights according to the customer's request that correspond to the degree of durability, four different weights: 90G, 110G, 120G, and 140G;
- **The brightness:** Customers' tastes differ according to the price level that the customer can pay. Therefore, the degree of brightness varies according to: normal, bright, very bright.

### **❖ Determining the relative importance of the requirements and needs of customers**

The relative importance of product specifications is determined in order to show the value of each specification and the importance it represents for the organization so that it can give each specification an importance that is consistent with the importance of customers at production, through which the cost of each specification is determined using the joint analysis method, and the relative importance of the basic specifications of the medium size boxes product has been determined

**Table 3.** Shows the relative importance of the basic specifications of the product:

Number	specification	Relative importance
1	the design	%33.7
2	the size	%11.3
3	Durability	%14.1
4	the color	%13
5	the shape	%14.5
6	the weight	%8.1
7	brightness	%5.3
total		%100

Source: Prepared by the researchers on the basis of information provided by the Foundation

What we notice from Table No. (03) regarding determining the relative importance of each characteristic of the product specifications is that the design specification is the highest degree of importance by 33.7% due to the fact that this type of product focuses on the design stage as the most important stage in the production process, given that the enterprise produces products based on Designs chosen by the customer.

Therefore, we note that the design process is one of the most important stages that receive attention during the production process, followed by the durability specification with a rate of 14.1%, in which the customer prefers that the box be characterized by durability in order to protect the internal body inside the box from damage. And so for the rest of specifications in different proportions.

#### ❖ Determining the relative importance of the product unit component (relationship matrix)

According to this method, we determine the technical (technical) characteristics of the product through two steps: (Zabin, 2020, p. 105)

**The first step:** We convert the relationship expressed in symbols between the customer's requirements and the specifications required for the product unit into numerical values. This conversion is according to the cardinal scale using (09,03,01), as shown in Table No. (04).

**The second step:** drawing a map of the relationship between the customer's requirements and the component part that contributes to the fulfillment of that requirement. The weights of the relationships were given in order to show the precedence of the percentages

of the components of fulfilling the customer's requirements on the basis of the required specifications.

**Table 4.** Weights for the product unit components relationship (relationship matrix)

<b>Relationship matrix</b>	
◎	Very strong relationship = 9 points
○	Average relationship = 3 points
△	Poor relationship = 1 single point

**Sours :** Franceschini, Fiorenzo, Advanced Quality Function Deployment, A CRC Press Company, Boca Raton London, New York Washington, D.C, America, 2002, p : 56.

**Tableau 5 .** Matrice des relations qui composent l'unité de produit pour atteindre les spécifications requises

Substance Name Specifications required by customers	cardboard	glue	Grip clutches	Ink for printing	Threads for binding	plastic wrapping paper
design	◎	○	○	◎	-	△
size	◎	△	○	○	○	○
durability	◎	◎	◎	△	○	○
colour	◎	-	-	◎	-	-
form	◎	◎	◎	-	△	△
weight	◎	△	△	-	△	△
brightness	-	-	-	-	-	-

**Source:** Prepared by the two researchers based on the opinions of specialists in the institution

After preparing the relationship matrix and showing each component in achieving each characteristic of the specifications, the symbols are converted into numbers through the following equation:

The relative importance of each component = the contribution of the direct material component x the degree of priority of the standard achievement level

Example:

$$\text{Design specification} = 9 * 33.7 / 100 = 3.033\%$$

**Table 6.** Shows the relative importance of the components of the product units in achieving the required specifications

Substance name  Specifications required by customers	cardboard	glue	Grip clutches	Ink for printing	Threads for binding	plastic wrapping paper	The relative importance of customer requirements
design	3.033	1.011	1.011	3.033	0	0.337	%33.7
Volume	1.017	0.113	0.339	0.339	0.339	0.339	%11.3
durability	1.269	1.269	1.269	0.01269	0.423	0.423	%14.1
coulour	1.17	0	0	1.17	0	0	%13
Shape	1.305	1.305	1.305	0	0.145	0.145	%14.5
weight	0.729	0.081	0.081	0	0.081	0.081	%8.1
brightness	0	0	0	0	0	0	%5.3
The relative importance of the cost of each component of the standard	%8.523	%3.779	%4.005	%4.55	%0.988	%1.325	100%

Source: Prepared by the two researchers based on Table No. (04) And Table No. (05).

### 2.2.3. Determine the cost of achieving each characteristic of the product

And after determining the relative importance of the components and units of the product in achieving the required specifications, In this step, the cost of achieving each of the product specifications is determined by determining the relative importance of each component of the specification from the direct materials and is calculated according to the following relationship:

**Cost of each specification of the direct material used = cost of the component X relative importance of the cost of each component of the specification**

The cost of product specifications from direct materials<sup>(1)</sup> is shown according to the following table:

<sup>1</sup> Total direct material costs (92 \* 800,000) = 73,600,000 DZD, according to the institution's policy, representing 70%

**Table 7.** Shows the amount of cost of specifications of production units from direct materials

Substance name	cardboard	glue	Grip clutches	Ink for printing	Threads for binding	Plastic wrapping paper	specification share of direct materials in dinars
Specifications required by customers							
design	10533474.13	1070124.372	1615580.524	10654512.16	0	2848603.774	26722294.96
volume	3531995.776	119608.362	541722.8464	1190860.41	2195951.417	2865509.434	10445648.25
durability	4407180.57	1343212.49	2027865.169	44578.22596	2740080.972	3575547.17	14138464.6
coulor	4063357.973	0	0	4110049.202	0	0	8173407.175
shape	45322069690	1381317.809	2085393.258	0	939271.2551	1225660.377	10163849.67
weight	2531784.583	85736.96745	129438.2022	0	524696.3563	684679.2453	3956335.354
brightness	0	0	0	0	0	0	0
total	29600000	4000000	6400000	16000000	6400000	11200000	73600000

Source: Prepared by the two researchers based on Table No. (06)

#### 2.2.4. Determining the final cost of the product

After the cost of achieving each product specification has been determined, at this stage the costs associated with the production volume for each product specification are collected after determining the contribution of indirect costs for each specification until we reach the final cost of the medium-sized carton boxes (cans of beans).

##### First: Calculating the costs of activities (indirect costs) for each of the specifications

They are the costs associated with the various activities, and these costs change by changing the activity. The labor costs of the activity are calculated for each characteristic of the product specifications through:

- **Work costs for each of the product specifications:**

Work costs per day are calculated according to the information provided by the institution under study. The average monthly salary of workers in the production stage is 30,000 DZD, and accordingly, the worker's wage per day =  $30,000/22 = 136.6$  DZD per day. Indirect industrial costs: According to the information provided by the institution under study, it is estimated at 21,648,000 DZD per month.



**Table 8.** Shows the indirect costs for each characteristic of the specifications

Specifications	Labor costs required to accomplish each specification			indirect manufacturing costs			(3 + 3') = 4
	Weekly total time/hour (1)	Wages in dinars / hour (2)	(1*2)=3 Labor costs in dinars	Industrial Indirect Costs (1)	relative importance(2)	Indirect industrial costs of specifications in dinars (1 * 2) = 3'	Total indirect costs for specifications
the design	60 hours	136.6	8196	21648000	%33.7	7295376	7303572
the size	24 hours	136.6	3278.4	21648000	%11.3	2446224	2449502.4
Durability	32 hours	136.6	4371.2	21648000	%14.1	3052368	3056739.2
the color	4 hours	136.6	546.4	21648000	%13	2814240	2814786.4
the shape	8 hours	136.6	1092.8	21648000	%14.5	3138960	3140052.8
the weight	4 hours	136.6	546.4	21648000	%8.1	1753488	1754034.4
brightness	8 hours	136.6	1092.8	21648000	%5.3	1147344	1148436.8
the total	140 hours / month	136.6	19124	21648000	%100	21648000	21667124

Source: Prepared by the two researchers based on the institution's data

### Second: Determining the cost of the product based on the specifications:

After calculating the costs related to (indirect) activities (1), the final cost of the medium-sized cardboard box product is calculated by collecting all the specification costs plus the total labor costs and the total indirect industrial costs so that we can arrive at determining the real cost based on the specifications. For one box, compared to the institution's policy, as it represents 30%, and the following table shows this:

**Table 9.**Cost per specification for a medium size box product

specifications	specification share of direct materials in dinars	The total indirect costs of specification	The total costs for each of the specifications
the design	26722294.96	7303572	34025867
the size	10445648.25	2449502.4	12895151
Durability	14138464.6	3056739.2	17195204
the color	8173407.175	2814786.4	10988194
the shape	10163849.67	3140052.8	13303902
the weight	3956335.354	1754034.4	5710370
Brightness	0	1148436.8	1148437
the total	73600000	21667124	95267124
Product unit cost			119.08

Source: Prepared by the two researchers based on Table No. (07) And Table No. (08)

<sup>1</sup> total indirect costs (27.06\*800000)= 21648000

Table No. (09) shows the total total costs of the product specifications, which are (design, size, durability, color, shape, weight, luster), and through the total costs of these specifications, we note that the design specification is the highest cost specification by 29763490.96 DZD due to the importance of this specification For the organization during the life stage of the product, as well as the specification for durability with a value of 154,11835.8 DZD, as well as a specification for shape with a value of 11469942.47 DZD, and then a specification for size with a value of 11465926.65 DZD. The high costs of these specifications are due to the high costs of direct materials, and the real reason is due to the customer's preference for products that comply with his desires and requirements, which are characterized by durability, quality and shape at the required level that he desires at the price level that he is willing to pay for it, we will make a comparison between the price of the cost of one box (medium size) according to the attributy costing and compare it with the system applied in the institution(1) according to the following table:

**Table 10.**Shows the difference between the cost of carton boxes average size on the basis of specifications with the method used in the institution:

Statement	Cardboard box product medium size
The cost per unit according to the system applied within the institution	119.06
Cost per unit according to the ABCII system	119.08
deviation	-0.02

**Source:** Prepared by the two researchers, Table No. (09) and information provided by the institution

What we notice from Table No. (10) is that the cost price according to the costing system based on ABCII specifications exceeds the cost according to the method used within the institution under study by a difference of 0.02. The reason for this difference is that the attributy costing system is a system based on correct scientific foundations that are compatible with the modern manufacturing environment, similar to the method followed by the institution. It calculates costs based on unscientific methods, which led to the failure to estimate the real cost of the product, and this negatively affects the reputation of the product and the institution as a whole.

Therefore, the organization, in order to ensure the loyalty of its customers and increase their profitability, is obliged to apply the correct methods of modern cost accounting systems through which it can rationalize production costs in a rational and rational manner.

<sup>1</sup> 27.06 + 92 = 119.06

#### **4. CONCLUSION**

On the light of the theoretical framework of the study and previous studies that dealt with way of applying the ABCII system and what we reached through the applied study according to the proposed conceptual model of the attributy based costing system and the possibility of its applying in the environment of Algerian economic institutions and its role in rationalizing production costs, and there for the two researchers chose GOURA EMBALLAGE as a sample for applying This system, and this study reached a group of results and recommendations represented in the following:

##### **Results:**

- The absence of the scientific background of the employees of GOURA EMBALLAGE in the ways of applying modern systems for strategic cost management.
- The institution under study estimates indirect costs in a way that is not commensurate with the development of the modern manufacturing environment, which makes it difficult for us to detail the costs of activities, including administrative and marketing costs, and other indirect costs.
- The application of the attributy based costing in the GOURA EMBALLAGE institution, according to the model carried out by the two researchers, contributes to the correct rationalization and reduction of production costs, and this proves the validity of the first hypothesis.
- The institution under study possesses all material and human capabilities, which serve as a starting point for a radical change in all costing methods and policies that it uses, and to rely more on benchmarking technology by benefiting from the experiences of successful institutions in this field of production, especially since the institution is characterized by high flexibility and rapid response. To the requirements of customers and meet their requirements by providing products with the required specifications, and this leads to the proof and validity of the second hypothesis.
- The institution works to gain customer satisfaction when providing and producing products at the required level of specifications, given that this institution produces small trial samples for the customer before producing the required quantity to test the product before using it, and this facilitates the application of the attributy based costing in the institution under study.
- This study concluded that there is a small difference in the cost of one unit of the producer of medium-sized carton boxes according to the costing system based on the specifications and the method followed by the institution under study.
- The application of the attributy based costing contributes to predicting the size of the costs that the organization will incur before the date of occurrence.

- Through the application of the costing system based on specifications, the organization can employ the needs and desires of customers and consumers in products through which it can achieve many of its goals, including increasing sales volume by increasing demand for its products, increasing its profitability, increasing competitiveness, maximizing market value.
- The attributy based costing works to rationalize production costs, which contributes to determining the real cost of the product before carrying out the production process, which helps the organization to solve most of the problems that it may encounter during the production stage.
- The organization neglects the process of marketing its products through electronic platforms, which contribute significantly to reducing marketing costs on the one hand and attracting the largest possible number of customers and consumers on the other hand.
- The institution under study relies on warehouses to store its products, as it is produced according to demand, and therefore it uses JIT production technology without its knowledge, and this proves the validity of the researchers' observation through the first result.

### **Recommendations:**

With the results obtained, we recommend the following:

- We recommend to the studied institution the need to consider the application of modern techniques for strategic cost management, including the ABC activity-based costing system, the attributy-based costing, the JIT time-based production system, and the TC targeted costing technology over the traditional methods used that do not contribute to achieving the institution's development The required level of competition in the national market.
- We recommend that the institution seek the help of experts and specialists in the field of cost accounting in order to work on updating the methods used in the determination of the costs of its products in a modern and rational manner, compatible with technological developments in the modern manufacturing environment.
- To exploit the technological development and progress in all areas, especially in the marketing of its products that reduce effort and time, and in the advertising of its products, especially in social networks.
- To pay more attention to the requirements of customers and consumers by preparing an electronic survey questionnaire on the products provided by the institution to know more about the most important specifications that have obtained customer

satisfaction and the specifications that do not satisfy them and work on their development.

- The two researchers recommend that the studied institution relies on modern costing methods through which it can separate itself in the determination of indirect costs so that it becomes easy in the process to allocate them to the products in a rational and rational way.
- The two researchers recommend that the studied institution pays attention to the studies and researches that aim at the necessity of applying modern systems of strategic cost management to solve all the problems it faces.

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