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Cost Reduction using Time- Driven Resource Consumption Accounting A case study in the leather factory / Advanced Civil Footwear Factory No. (7)

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ABSTRACT: Most products produced by profit-oriented industrial units operating in the Iraqi environment face intense competition from imported products due to several problems. These include a lack of market research, high production costs, insufficient government support for the industrial sector, the flooding of local markets with imported products at competitive prices, and the reliance of these units on traditional costing systems that fail to provide adequate information for pricing decisions. Therefore, it is necessary to analyze these problems and address them using a modern strategic cost management technique: Time-Driven Resource Consumption Accounting (TD-RCA), This research aims to study and analyze the role of TD-RCA in Cost Reduction, To achieve this objective, TD-RCA was applied to a product of the Advanced Civil Footwear Factory No. (7) based on field observation and data analysis for the year 2024, The research concluded that applying TD-RCA to determine production costs at the Advanced Civil Footwear Factory No. (7) in 2024 resulted in a reduction of production costs from (390,856,988) Iraqi dinars, calculated according to the traditional costing system. The current cost applied in the factory is (287310178) dinars, calculated after applying the ((TD-RCA) technology, i.e., a reduction in costs of (103546810) dinars, which is represented by the costs of idle energy, which should not be charged to the product costs, meaning that the application of this technology contributed to reducing costs.

KEYWORDS: Time- Driven Resource Consumption Accounting, Cost Reduction

INTRODUCTION

Today, industrial economic units face a complex environment that necessitates the production of high-quality products at relatively low costs, This is compounded by the pressures of intense local and global competition, Due to these challenges, industrial economic units wishing to remain competitive in the market for extended periods must undertake fundamental changes in cost management, This involves transitioning from traditional costing systems to a strategic cost management technique: Time- Driven Resource Consumption Accounting, This is one of the most significant modern strategic cost management methods as it helped the economic units to minimize the cost of goods or services through the maximum utilization of resources, eliminating the wastage and losses, enhancing the process of production and finally enhancing the competitiveness of economic units who will be able to offer high quality goods at the right time, satisfy the needs and desire of the customer and at low price.

SECTION ONE
RESEARCH METHODOLOGY

First/ Research Problem: Research Problem: Iraqi industrial economic units aiming for profit face many challenges, the most prominent of which is their inability to compete and survive for long periods in the markets due to several problems, the most important of which are the obsolescence of machinery and equipment, high production costs, inefficiency in the workforce, and the weakness of the traditional costing systems applied in industrial economic units and their inadequacy in determining product costs more fairly and objectively. This has led to the necessity of using modern techniques or methods that help in determining product costs objectively and rationalizing administrative decisions related to production. To express the research problem, we present the following question, which the researcher seeks to answer through this research:

Does applying Time- Driven Resource Consumption Accounting contribute to reducing product costs?

Secondly/ Research Objectives: This research aims to achieve the following**:**

1- To identify the knowledge bases of Time- Driven Resource Consumption Accounting.

2- To identify the knowledge bases of the Cost Reduction process.

3- To study and analyze the role Time-Driven Resource Consumption Accounting in reducing product costs .

Thirdly/ The importance of the research: Topicality of the presented research is to be observed in the fact that the industrial economic units are increasingly in need to be functioning in the Iraqi environment in order to implement

the modern techniques, methods and management styles that can justify and legitimize the decisions made by the administration, especially the decision associated with the price of the product and their management. In fact, when businesses in the context of high competition are concerned, application of high cost management systems should be considered to assist organizational decision-makers to enhance efficiency and sustainable performance that offers appropriate and valid information to them**.** In that regard, the paper speculates one of the best strategies of strategic cost-management in the current era i.e. Time-Driven Resource Consumption Accounting (TDRCA). It belongs to the new accounting methods in the management which are directed to the quantification of the use of the resources and the resource allocation in effective practices to rely on the moment when the actual activity will be possible to practice it. The practical application of the technique can be pivotal in lowering the price of the products, increasing the level of efficiency in the use of the resources, and strengthening the organizations to possess the means to remain competitive in the market in the long-term**.** Moreover, the study has a strong scientific implication, as it may become the constituent of scientific body of knowledge on the issue of strategic cost management. It can also serve as an additional source of information to the researchers and scholars who may be interested in the

Seventh / The default research model

prevailing cost management practices, and the connection between it and cost reduction and activities of managerial decision-making which are practiced in the industrial organization.

Fourthly/ Research Hypothesis: According to the research problem, the researcher will seek to either disapprove or approve the following hypothesis: the utilization of time-directed resource consumption accounting technology is related to minimization of the cost of products.

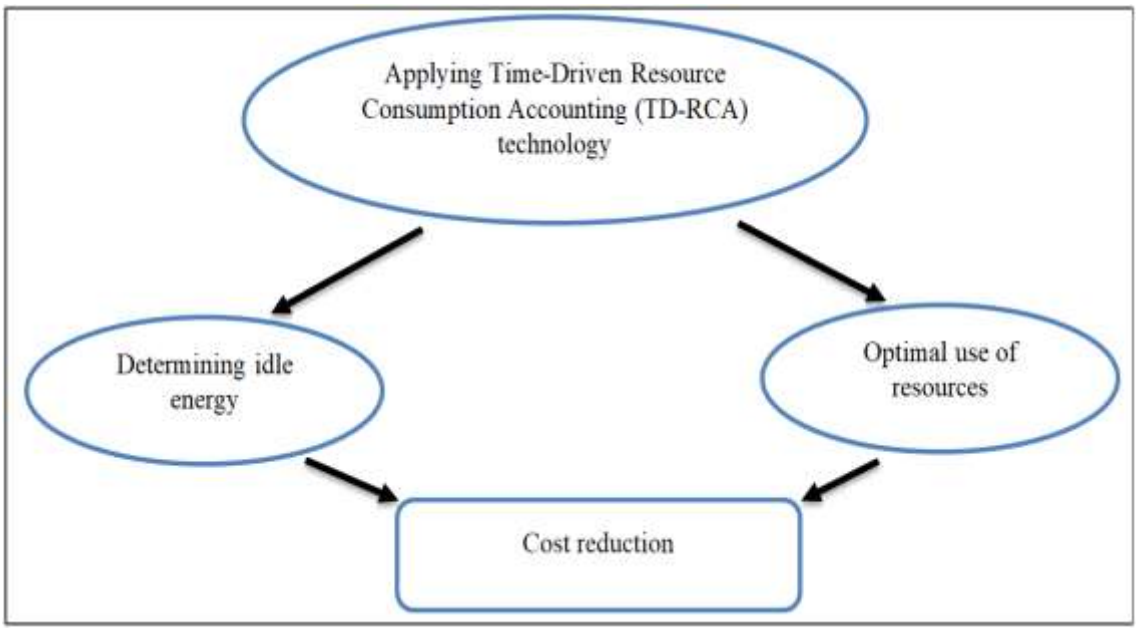
Fifth/ Research Community and Place of Application: The target community of the study was the industrial sector in Iraq that comprises the Iraqi industrial economic units. Since it is highly relevant to the economic growth of the country, and considering the fact that this industry is large, and the number and complexity of its industrial economic units are numerous, the General Company of Textile and Leather Industries was selected, as the object of the study.

Sixth/ Scope of the Research:

1 -Spatial Scope: The spatial boundaries of this research are the perimeter of the leather factory/advanced civilian shoe factory No. (7) located in Karrada outside/Baghdad Governorate/Iraq

2- Temporal Scope: The financial data and reports pertaining to the Leather Factory / Advanced Civil Footwear Factory No. 7 for the year (2024) were relied upon.

Figure (1) Hypothetical research plan



Source: Prepared by the researcher

SECTION TWO: The Theoretical Framework of Time-Driven Resource Consumption Accounting and its Role in Cost Reduction

First: The Concept of Time- Driven Resource Consumption Accounting: Traditional costing systems suffer from numerous limitations, most notably their inability to provide relevant information that meets the demands of the modern manufacturing environment. They also neglect market considerations and changes, particularly intense competition. This has led to the search for alternative

techniques to address these limitations. One of the most prominent of these is Resource Consumption Accounting (RCA), a modern strategic costing technique that has proven successful in cost management. However, RCA faces several limitations, primarily its neglect of the principle of cost allocation by linking it to the optimal time required for activities related to their performance, in an attempt to rationalize the costs of products or services. This has prompted many economic entities to seek and adopt modern techniques to address the limitations of RCA. Among the most prominent of these is Time- Driven Resource Consumption Accounting (TD-RCA) (Hussein, 2025: 284). This technique is considered one of the most prominent modern strategic costing techniques and represents an integration of Time-Driven Activity-Based Costing (TD-ABC) and the German Costing System (GPK) aim to address the limitations of Resource Consumption Accounting (RCA), particularly in dealing with fixed costs and converting them into consumed and variable energy through activities that contribute to generating outputs. This involves attempting to establish a relationship between resources and the outputs of resource pools, which in turn leads to creating artificial changes in fixed costs, measuring costs according to quantitative energy perspective can lead to separating idle and unutilized energy on the one hand, and achieving a more equitable and objective measurement on the other. Furthermore, this technique deals directly with resource energy, which significantly contributes to Cost Reduction through the optimal utilization of available resources (Yilmaz & Ceran, 2017:139). Definitions of Time-Driven Activity-Based Costing (TD-RCA) are numerous and varied, and Table (1) below shows these definitions:

Table (1) Technical Definitions (TD-RCA)

Definition	Source	Sequence
It is among the most salient contemporary strategic cost management methods that offers a prospective viewpoint of resource utilization through the reimbursement of time as a main-cost driver in a manner that offers provision of more specific and objective information, and is expressed in presentations of appropriate information on the optimal exploitation of the economic unit resources in place, and utilization of unexploited (idle) energy to assist in boosting output and alleviation of products price.	(Al-Safi, 2023: 33)	-1
It is one of the approaches to developing cost measurement, which is based in its philosophy on the Time-Directed Activity-Based Costing (TD-ABC) approach and the German costing approach (GPK), designed to address the shortcomings of resource consumption accounting technology.	(Hamed, 2023: 723)	-2
It is one of the most important strategic cost management techniques that emerged to address the criticisms directed at the resource consumption accounting technique in terms of providing the necessary information about cost and time, given their importance in decision-making, as well as the extent to which the economic unit is able to exploit the available resources efficiently.	(Al-Ta'i, 2023: 34)	-3
It is a new approach through which costs are allocated based on activities and their ability to identify idle resources for each activity based on the size of outputs for each resource or homogeneous group of resources by moving from total resource analysis to individual resource analysis and using the reverse allocation method and relying on flexible time guides.	(Hadi&Hatif,2023:397)	-4

Based on the above, it can be said that the (TD-RCA) technique is one of the most prominent modern strategic cost management techniques, as it represents a development of the (RCA) technique, as it combines the features of the (TD-ABC) technique, the most important of which is its reliance on the time factor, which is characterized by flexibility, and the features of the German costing system (GKP), the most important of which is its focus on resources.

Secondly/ Steps for applying the TD-RCA technique

The steps for applying the TD-RCA technique in economic units are as follows: (Hamed, 2023: 727-728)

1. Identifying the different resource pools: Resource pools consist of all the divisions and departments within the economic unit that are related to the production of the product. Careful consideration should be given to the principle of homogeneity when identifying these pools, as well as the interrelationship between them, in order to determine the extent to which each pool benefits from the others.

2. Identifying the cost elements related to the resource pools: This step involves identifying all costs associated with each resource pool, including direct and indirect costs. The

resource pools are then allocated their share of direct and indirect costs, reflecting the interrelationship between the different resource pools within the economic unit.

3- Separating Resource Pool Costs into Fixed and Proportional Costs: After the costs of each resource pool were determined in the previous step, in this step the costs of each pool will be separated into fixed costs and proportional costs. When the quantity of resources (inputs) consumed remains constant and does not change with the change in the level of outputs of the cost target consumed, then the relationship of consumption to any resource is constant. However, when the quantity of resources (inputs) consumed changes with the level of outputs of the cost target consumed, then the relationship of consumption to any resource is proportional.

4 -Determining Theoretical and Practical Capacity: The practical capacity of each resource pool is determined by the number of working hours required to perform any activity within it. This is usually estimated at between 80% and 85% of the theoretical capacity. It is preferable to adopt 80% as the practical capacity, assuming the remaining percentage is treated as an allowance to cover losses resulting from various factors such as downtime, machine repairs and maintenance, answering calls, instructing employees, and other matters unrelated to actual work performance**.**

5 -Calculating Time Cost Rates: After determining the theoretical and practical capacity of the resource pools in the previous step, this step involves calculating various overhead rates, both fixed and variable. Fixed costs are linked to the theoretical capacity, and proportional costs are linked to the practical capacity**.**

6- Allocating Resource Pool Costs to Production Departments: This step involves allocating the costs of service centers, including their various resource pools, to the production departments. Idle capacity costs are then separated to calculate the product cost, This is preceded by the TD-RCA technique, which allocates resource pool costs to these departments based on time-based cost drivers such as (Working hours).

7- Idle Cost Separation: According to this step, the idle capacity of resources is determined by comparing the cost of the product before applying the (TD-RCA) technique and the cost of the product after applying the (TD-RCA) technique in the economic unit. It represents the difference between them. Determining the quantity of resources consumed in production and the amount of idle capacity, whether it is consumed capacity as inventory or lost capacity as a loss for each resource pool, helps in identifying those responsible for it and then taking corrective actions.

Third: Advantages of applying Time- Driven Resource Consumption Accounting (TD-RCA) technology

There are several advantages or benefits that can be achieved by the economic unit when applying the TD-RCA technique, which are as follows**:**

1- This technology contributes to providing more objective cost information, and this information depends in detail on the various products or services, especially in light of the intense competition between business organizations. Moreover, the cost technology adopted in providing information affects the objectivity and reliability of the information in a way that contributes to eliminating waste and loss and making products or services less costly (Pickring & Byrnes, 2016:94).

2- This technique contributes to eliminating waste and getting rid of all activities that do not add value to the product by using the value chain, which represents a series of business functions in which the product is made more valuable to the customer, thus maximizing customer value (Horngren et al, 2018:4).

3- This technique contributes to the preparation of multiple reports for all administrative levels in the economic unit by providing detailed operational and strategic information related to the time of completion. This technique provides information on the cost of the product in a more equitable and objective manner compared to other costing techniques by excluding idle resources from product costs and preparing reports on idle energy and utilized energy (Tsc & Gong, 2009:45-46).

4- This technology has the ability to integrate with multiple information technologies and systems such as the ERP system, which contributes greatly to providing various information about resources, activities, their costs, time guidelines, and others. This technology also focuses on the concept of the value chain and identifying activities that add value and activities that do not add value (Weygandt et al, 2012:20).

Fourth: Time- Driven Resource Consumption Accounting (TD-RCA) and Cost Reduction

Economic units strive to achieve a set of objectives, most notably Cost Reduction, in order to gain and maintain a competitive advantage and remain in the market for extended periods. The Institute of Cost Accounting defines Cost Reduction as achieving real and continuous savings in the cost per unit of a product or service without affecting its suitability for the intended use (Al-Kaabi, 2009: 14). The focus of the Cost Reduction process by the economic unit should be on the earliest stages of the product development, namely the design phase, to minimize costs and conduct thorough market research to identify new products that competitors intend to launch, understand anticipated customer needs and desires, and assess customer willingness to accept lower costs for products or services (Bragg, 2007: 229), Real Cost Reduction can be achieved by applying the

TD-RCA technique through the following methods: (Al-Safi, 2023: 73)

1. Idle energy is measured from the perspective of consumed resources associated with activities, isolating non-value-adding, non-essential, and unproductive energy, and considering all of these as idle energy.
2. The efficiency of produced energy is improved, which is directly related to the output of each resource pool. This is achieved by relying on time vectors, as these vectors are a measure of energy for each activity. Furthermore, the TD-RCA technique defines cost as a consumable resource. Costs are reduced by decreasing the quantity of resources used, identifying utilized energy, and eliminating unutilized (idle) energy.

Third Section

The application of the (TD-RCA) technology in the Leather Factory / Advanced Civil Footwear Factory No. (7) and its role in reducing costs: In this part, the application of the ((TD-RCA) technology in the Leather Factory / Advanced Civil Footwear Factory No. (7), which is one of the factories of the General Company for Textile and Leather Industries, one of the structures of the Iraqi Ministry of Industry and Minerals, will be considered, the data of the year 2024 was taken to the Advanced Civil Footwear Factory No. 7 of the study subject.

First: An introduction to the Advanced Civil Footwear Factory No. (7) (the subject of the study): This is among the most significant factories of the leather factory since this factory got the ISO (9001) certificate in 2015. It is situated in Baghdad Governorate, the Al-Karrada Al-Sharqiya region, since it is the primary location of the former General Company of Leather industries and the presently known General Company of Textile and Leather industries which is among the entities of the Iraqi Ministry of Industry and Minerals. The accounting system which is unified and the traditional production systems are used in this firm. This manufacturing facility will be engaged in the production of men shoe in various models including closed or laced-up models and of various colors and sizes as scheduled. The primary aim of the study is to implement the (TD-RCA) technology to the Advanced Civil Footwear Factory No. (7) and demonstrate how it would decrease the production expenses. It will be implemented on the product, a men shoe, model 79254, to give the required information regarding its manufacturing.

Secondly / Steps for applying the TD-RCA technique in the Advanced Civil Footwear Factory No. (7) on the men's shoe product, model(79254) **:**

Step One/ Identifying the different resource clusters: The different resource clusters include all departments and divisions related to the production of the men's shoe, model (79254), namely the cutting department, the sewing department, the mold drawing department, and the production department, as well as the inspection and quality department, the maintenance department, the technical department, the warehouse department, the administrative services department, and the marketing services department as service departments**.**

Step Two/ Identifying the cost elements related to the resource clusters: This step involves dividing the cost elements into direct costs and indirect costs related to each resource cluster, as follows: 1- Identifying the direct cost elements related to the production departments of the men's shoe product, model (79254). The direct cost elements are represented by the direct materials and direct labor elements related to the production departments of the men's shoe product, Table (2) below illustrates these costs:

Table (2) Direct costs of production departments related to the product (Men's shoe model 79254)

Total	Pattern Making Department	Sewing Department	Cutting Department	Cost Elements
13552600	9444500	1323600	2784500	Direct Materials
328137000	228803000	55454000	26673000	Direct Labor
324482600	238247500	56777600	29457500	Total

Source: Prepared by the researcher based on the trial balance of the production departments for the year 2024

Table (3) Indirect costs of service departments related to the product (Men's shoe model 79254)

Costs	Resource Pool	Service Cost Center
17207000	A- Individuals' Complex Salaries	Inspection and Quality Control

45522300 15987496 4514297	A- Individuals' Complex Salaries B. Machinery Maintenance - Complex Maintenance Costs Depreciation of Machinery and Equipment	Maintenance
45850000 5763690 2430450 18709076	A- Individuals' Complex Salaries B. Energy Complex- Electricity Costs Fuel and Oils C Engineering Workshops - Complex Tools and Molds	Technical Department (Driving forces)
15144100 81993230	A- Individuals' Complex B. Raw Materials Complex	Warehouses
108569500	A- Individuals' Complex Salaries	Administrative Services
24010500 5155349	A. Individuals Complex Salaries B. Sales Exhibition Complex Advertising and Printed Materials	Marketing Services

Source: Prepared by the researcher based on information from the Cost and Pricing Division and the Planning Division at the laboratory.

Step Three/ Separating Resource Pool Costs into Fixed and Proportional Costs: After studying and analyzing each cost element in the factory and understanding the nature of this element, relying on the staff in the Cost and Pricing Department, the researcher was able to divide the various resource pool cost elements in to Fixed Costs and proportional costs, as shown in the tables below:

Table (4) Fixed and Proportional Costs in the Inspection and Quality Department

Total	proportional costs	Fixed costs	Complexes
			Individuals Complex
17207000	17207000	–	Employee Salaries
17207000	17207000	–	Total

Source: Prepared by the researcher based on reports from the Cost and Pricing Division of the laboratory and the outputs of Table (3)

Table (5) Fixed and Proportional Costs in the Maintenance Department

Total	Proportional costs	Fixed costs	Complexes
			Individuals' Complex
45522300	–	45522300	Employee Salaries
			Machinery Maintenance Complex
15987496	15987496	–	Maintenance Costs
4514297	4514297	–	Depreciation of Machinery and Equipment
66024093	20501793	45522300	Total

Source: Prepared by the researcher based on reports from the Cost and Pricing Division of the laboratory and the outputs of Table (3)

Table (6) Fixed and Proportional Costs in the Technical Department(Driving forces)

Total	Proportional costs	Fixed costs	Complexes
			Individuals Complex
45850000	13755000	32095000	Employee Salaries
			Energy Complex
5763690	–	5763690	Electricity Costs
2430450	–	2430450	Fuel and Oils
			Engineering Workshops Complex
18709076	14780170	3928906	Tools and Molds
72753216	28535170	44218046	Total

Source: Prepared by the researcher based on reports from the Cost and Pricing Division of the laboratory and the outputs of Table (3)

Table (7) Fixed and Proportional Costs in the Warehouse Department

Total	Proportional costs	Fixed costs	Complexes
			Individuals' Complex
15144100	–	15144100	Employee Salaries
81993230	–	81993230	Raw Materials Complex
97137330	–	97137330	Total

Source: Prepared by the researcher based on reports from the Cost and Pricing Division of the laboratory and the outputs of Table (3)

Table (8) Fixed and Proportional Costs in the Administrative Services Department

Total	Proportional costs	Fixed costs	Complexes
			Individuals' Complex
108569500	–	108569500	Employee Salaries
108569500	–	108569500	Total

Source: Prepared by the researcher based on reports from the Cost and Pricing Division of the laboratory and the outputs of Table (3)

Table (9) Fixed and Proportional Costs in the Marketing Services Department

Total	Proportional costs	Fixed costs	Complexes
			Individuals Complex
24010500	–	24010500	Employee Salaries
			Exhibitions and Advertising Complex
5155349	–	5155349	Advertising and Publications
29165849	–	29165849	Total

Source: Prepared by the researcher based on reports from the Cost and Pricing Division of the laboratory and the outputs of Table (3)

Step Four/ Identification the theoretical and practical capacities and calculating the time unit cost rates: According to this step, the time unit cost rates for each resource Complex are calculated by dividing the fixed costs of each resource Complex by the theoretical capacity and dividing the proportional costs of each resource Complex by the practical capacity, Table (10) below shows the theoretical capacity, practical capacity, and time unit cost rates for each resource Complex:

Table (10) Theoretical and practical energy and time cost rates

Proportional cost rate dinar/hour (6) 4÷2	Fixed cost rate dinar/hour (5) 3÷1	practical energy (hour)[1] (4)	Theoretical energy (hour) (3)	Proportional costs (2)	Fixed costs (1)	Resource Complex	Service Cost Center
4077	–	4220	–	17207000	–	A- Individuals' Complex Salaries	Inspection and Quality Control
–	3883	–	11723	–	45522300	A- Individuals' Complex Salaries	Maintenance
1515	–	10551	–	15987496	–	B. Machinery - Maintenance Complex Maintenance Costs	
481	–	9378	–	4514297	–	Depreciation of Machinery and Equipment	
1457	2719			13755000		A- Individuals' Complex Salaries	Technical Department (Driving forces)
–	708	9442	11803	–	32095000	B. Energy Complex- Electricity Costs	
–	644			–		Fuel and Oils	
		–				C Engineering - Workshops Complex	
		–	8144		5763690	Tools and Molds	
2372	504		3777	14780170	2430450		
		6232					
			7790		3928906		
–	3464	–	4372	–	15144100	A- Individuals' Complex Salaries B. Raw Materials Complex	Warehouses
–	9377	–	8744	–	81993230		
–	4382	–	24774	–	108569500	A- Individuals' Complex Salaries	Administrative Services
–	4737	–	5069	–	24010500	A. Individuals Complex Salaries B. Sales Exhibition Complex Advertising and Printed Materials	Marketing Services
–	1143	–	4511	–	5155349		

Source: Prepared by the researcher based on the previous tables.

[1] Practical energy represents 80% of theoretical energy

Step Five / Distributing Resource Guide Costs to Production Departments: According to this step, the costs of service centers (costs of various resource clusters) are distributed to the production departments related to the men's shoe product, model (79254), as shown in the two tables below:

Table (11) Cost guides consumed by the production departments related to the men's shoe product model (79254) (in hours)

Pattern Making Department (hour)	Sewing Department (hour)	Cutting Department (hour)	Resource Complex	Service Cost Center
326	399	568	A- Individuals' Complex Salaries	Inspection and Quality Control
1492	3393	2600	A- Individuals' Complex Salaries B. Machinery - Maintenance Complex	Maintenance
760	5578	1772	Maintenance Costs	
3776	2150	1630	Depreciation of Machinery and Equipment	
2805	769	2811	A- Individuals' Complex Salaries B. Energy - Complex	Technical Department (Driving forces)
1372	616	1360	Electricity Costs	
940	130	1758	Fuel and Oils C Engineering - Workshops Complex	
759	829	1651	Tools and Molds	
722	538	999	A- Individuals' Complex Salaries B. Raw Materials Complex	Warehouses
1988	2021	3973		
5697	3820	10965	A- Individuals' Complex Salaries	Administrative Services

1618	1123	1894	A. Individuals Complex Salaries	Marketing Services
733	–	1456	B. Sales Exhibition Complex Advertising and Printed Materials	

Source: Prepared by the researcher with the approval of the Cost and Pricing Division and the Time Study Division

After the cost guidelines (per hour) have been distributed to the production departments as shown in Table (11) above, the resource pool costs will be distributed to the production departments according to the cost guidelines (per hour) as shown in Table (12) below:

Table (12) Distribution of Resource Pool Costs Across Production Departments

Total (dinar)	Pattern Making Department (dinar)	Sewing Department (dinar)	Cutting Department (dinar)	Resource Complex	Service Cost Center
5271561	1329102	1626723	[2]2315736	A- Individuals' Complex Salaries	Inspection and Quality Control
29064255	5793436	13175019	10095800	A- Individuals' Complex Salaries	Maintenance
12286650	1151400	8450670	2684580	B. Machinery - Maintenance Complex Maintenance Costs	
3634436	1816256	1034150	784030	Depreciation of Machinery and Equipment	
26663760				A- Individuals' Complex Salaries	
2370384	11713680	3211344	[3]11738736	B. Energy - Complex Electricity Costs	Technical Department (Driving forces)
1821232	971376	436128	962880		
	605360	83720	1132152	Fuel and Oils	
	2182884	2384204	4748276	C. Engineering - Workshops Complex Tools and Molds	
9315364					

[2] Dinar 2315736 = hour 586 × Dinar/hour 4077

[3] Dinar 11738736 = hour 2811 × (Dinar/hour 1457 + Dinar/hour 2719)

7825176 74847214	2501008 18641476	1863632 18950917	3460536 37254821	A- Individuals' Complex Salaries B. Raw Materials Complex	Warehouses
89752124	24964254	16739240	48048630	A- Individuals' Complex Salaries	Administrative Services
21955995 2502027	7664466 837819	5319651 –	8971878 1664208	A. Individuals Complex Salaries B. Sales Exhibition Complex Advertising and Printed Materials	Marketing Services
287310178	80172517	73275398	133862263		the total

Source: Prepared by the researcher based on Table (10) and Table (11)

Step Six: Separating idle energy and its costs: This step determines the idle energy costs resulting from the difference between the product costs according to the records of the Advanced Civil Footwear Factory No. (7) and the product costs after applying the (TD-RCA) technology in the factory, as shown in Table (12) below:

Table (12) Idle energy costs for resource pools related to cost centers for the men's shoe product model (79254) for the year 2024

Idle energy ratio (4) 1÷3	Idle energy (3) 1-2 (dinar)	Product costs after applying TD-RCA technology (2) (dinar)	Product costs according to factory records (1) (dinar)	Resource Complex	Service Cost Center
0.6936	11935439	5271561	17207000	A- Individuals' Complex Salaries	Inspection and Quality Control
0.3615 0.2314 0.1949	16458045 3700846 879861	29064255 12286650 3634436	45522300 15987496 4514297	A- Individuals' Complex Salaries B. Machinery - Maintenance Complex Maintenance Costs Depreciation of Machinery and Equipment	Maintenance

0.4184 0.5887 0.2506 0.5020	 19186240 3393306 609218 9393712	26663760 2370384 1821232 9315364	45850000 5763690 2430450 18709076	A- Individuals' Complex Salaries B. Energy - Complex Electricity Costs Fuel and Oils C. Engineering - Workshops Complex Tools and Molds	Technical Department (Driving forces)
0.4832 0.0871	7318924 7146016	7825176 74847214	15144100 81993230	A- Individuals' Complex Salaries B. Raw Materials Complex	Warehouses
0.1733	18817376	89752124	108569500	A- Individuals' Complex Salaries	Administrative Services
0.0855 0.5146	2054505 2653322	21955995 2502027	24010500 5155349	A. Individuals Complex Salaries B. Sales Exhibition Complex Advertising and Printed Materials	Marketing Services
0.2649	103546810	287310178	390856988		the total

Source: Prepared by the researcher based on Table (3) and Table (11)

In Table (12) mentioned above, the importance of the role played by the (TD-RCA) technique in reducing the costs of the production departments that contributed to the production of the men's shoe model (79254) is evident by isolating the costs of idle and unutilized energy and bringing the costs of those production departments to an amount of (287310178) dinars compared to their costs according to the traditional costing system applied in the Advanced Civil Shoes Factory No. 7, which amounted to (390856988) dinars, i.e., a reduction in costs of (103546810) dinars, which leads as a result to reducing the product costs and achieving a competitive advantage. This reduction was achieved due to the ability of this technique to identify idle energy and its cost by linking the costs of the various resource pools to the actual energy and directing the factory management to the necessity of optimal utilization of resources. Thus, the research hypothesis was achieved (that the use of Time – Driven Resource Consumption Accounting technique contributes to reducing product costs).

SECTION FOUR

Conclusions and Recommendations

First: Conclusions

1. The traditional costing systems applied are weak in achieving the requirements and objectives of the economic unit's management, as these systems are no longer able to provide more fair and objective information that helps management to make appropriate decisions in light of the

developments and changes taking place in the business environment in our time, most notably the intense competition, which has led to the need to rely on modern technologies that keep pace with these changes and developments, and one of the most prominent of these technologies is the time-directed resource consumption accounting (TD-RCA) technology.

2. The (TD-RCA) technique is one of the most prominent modern techniques that is distinguished by its ability to allocate costs more fairly and objectively by using cost guides based on the time factor, which is one of the basic and important success factors for the economic unit, as well as achieving optimal utilization of resources and reducing the costs caused by activities and working to control them through quantitative and cost analysis of all resources and optimal utilization of these resources and determining the time required to accomplish them..

3. The application of the (TDRCA) technology in the Advanced Civil Shoes Factory No. (7) for the year 2024 led to a reduction in production costs from (390856988) dinars, calculated according to the traditional costing system currently applied in the factory, to (287310178) dinars, calculated after the application of the (TD-RCA) technology, i.e., a reduction in costs of (103546810) dinars, which is represented by the costs of idle energy, which should not be charged to the product costs, That is the application of this technology contributed to reducing costs.

Second: Recommendations

1. The costing system currently implemented in the economic unit (under study) should be modified by updating it with a modern strategic costing technique: Time-Driven Resource Accounting (TD-RCA). This technique calculates product costs using a sound scientific basis and contributes to reducing product costs and optimizing resource utilization.

2. To maximize the potential success of implementing TD-RCA in reducing costs, the researcher recommends that the factory utilize its idle capacity. This will reduce the cost of men's shoes and meet market demand for this product.

3. It is essential to train employees of Leather factory in general, and those at the Advanced Civil Footwear Factory No. 7 in particular, on modern strategic costing techniques. This training should enhance their capabilities and skills to ensure the efficient and effective application of these techniques. The numerous benefits of these techniques will positively impact the economic unit's value and competitive advantage.

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