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EVALUATING THE PERFORMANCE OF THE ECONOMIC UNIT USING RESOURCE CONSUMPTION ACCOUNTING AND THE BALANCED SCORECARD

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ABSTRACT
This paper aims to demonstrate both the accounting of resource consumption and the balanced scorecard as contemporary accounting techniques and their major role in developing the performance of the economic unit in comparison with the traditional cost-effective methods. It also highlights the role of accounting for resource consumption in supplying sufficient knowledge to incorporate the Balanced Scorecard technologies and describes its effects on the efficacy of performance management and clarifies issues of complementarity between accounting for resource consumption and Balanced Scorecard viewpoints. In order to achieve these goals, the research relied on the data of the men's clothing factory in Najaf for the year 2018, through field visits and personal interviews with department directors and employees in order to apply the technique of accounting for resource consumption and the balanced scorecard and the effect of their integration on the evaluation of the efficiency of the performance of the economic unit. . The results show that the integration between resource consumption accounting (RCA) and the balanced scorecard (BSC) leads to an increase in the efficiency of the financial and non-financial indicators of the four perspectives of the balanced scorecard (financial, customer, internal operations, and learning and growth perspectives). Consequently, it will lead to an increased evaluation of the performance efficiency of the economic unit of the research sample.

Introduction

The intense competition faced by economic units at the present time, as well as the criticism that traditional accounting systems have been exposed to, which are no longer able to provide appropriate information for decision-making by management, which has led to the need to use new techniques to manage costs. These technologies aim to increase production and reduce costs while preserving quality in addition to maintaining customer satisfaction, which contributes to evaluating the performance of the economic unit. As the economic units in Iraq are exposed to many challenges in light of the economic conditions, and among the most important of these challenges is the high costs, which leads to higher selling prices and thus leads to reducing their market share. The economic units strive to achieve success and continue their operations, especially in the highly competitive environment and technological development, and thus need to evaluate their performance in order to ensure their continuation and profit. Among these techniques that contribute to achieving this are the Resource Consumption Accounting (RCA) technology and the Balanced Scorecard (BSC) technique, and based on the above, the following question will be asked: Will the use of the techniques of accounting for resource consumption and the balanced scorecard increase the efficiency and effectiveness of financial and non-financial indicators to evaluate the performance of the economic unit?

The importance of the research lies in the use of contemporary accounting techniques, including accounting for resource consumption and the balanced scorecard, and their application in economic units. These technologies have the benefit of providing relevant, efficient, and high-quality information in the field of cost and management accounting to help them achieve their goals and ensure their survival in light of the intense competitive environment and to ensure proper and correct evaluation of their performance. The current study is distinguished from previous studies as it dealt with measuring the efficiency evaluation of economic unit performance through the integration between resource consumption accounting (RCA) and the Balanced Scorecard (BSC) using the applied method through the application of resource consumption accounting in one of the governmental economic units (Almusawi, Almagtome, & Shaker, 2019). The men's clothing laboratory in Al-Najaf represents the research period in which the efficiency of the economic unit's performance will be measured and evaluated before and after the application of the Resource Consumption Accounting (RCA) technique through the Balanced Scorecard (BSC) technology and comparing them. While most of the previous studies such as (Yilmaz & Ceran, 2017), (Al-Rawi & Abd al-Hafiz, 2018), (Kbelah, Amusawi, & Almagtome, 2019), (Alkhafajia, Almusawib, & Isam, 2020) relied on theoretical analysis and the adoption of a questionnaire, which is not objective in the business environment.

Literature Review

Resource Consumption Accounting

Resource Consumption Accounting (RCA) emerged as an approach to management accounting in 2000, and was subsequently developed in the International Association for Advanced Manufacturing (CAM-I) in December 2001 (Hussain, Gunasekaran, & Laitinen, 1998). The International Federation of Accountants (IFAC) in 2009 included Resource Consumption Accounting (RCA) in its Good Cost Management Practice Guide in its report (Evaluating the Costing Journey: A Costing Levels Continuum Maturity Model) (Al-Rawi & Abd al-Hafiz, 2018). RCA combines the German cost management method (GPK) and the activity-based cost method (ABC). It combines the advantages of both to form a comprehensive and integrated management accounting technology for cost management (Kbelah & Almagtome, 2019). (RCA) focus on following the resource flow, then costs can be followed. Since costs are important to management decisions, resources are why costs are realized. It is important to understand the nature of the resources in order to model them effectively (Al-Qady & El-Helbawy, 2016). (RCA) provides important data through knowing idle capacity so that it is visible to managers, thus avoiding allocating the cost of this capacity to cost targets (Al-Hebry & Al-Matari, 2017). Resource consumption accounting has been defined as: a costing method that provides decision makers with improvement information by combining learning, proven application and sound decision support principles (IFAC, 2009). It also defines Benha as "a comprehensive and integrated cost management system, which is a new approach to accounting and provides managers with improved information on economic unit" (Carraro, 2018). It was also defined as: It is a technique that combines the advantages of both German cost (GPK) and activity-based costing (ABC), by providing the economic unit with reliable and appropriate information. This technology focuses mainly on distinguishing between owning and consuming resources, as well as identifying idle capacity in order to reduce costs, increase profits, and support the competitive position.

Resource Consumption Accounting (RCA) contains three main pillars, which are the comprehensiveness of resources, the nature of costs, and the use of a quantitative-based cost model (Okutmus, 2015). Comprehensiveness of resources: depends on the comprehensive view of the resources through the resources allocated to the activities and operations within the economic unit. This is because the capacity that has been studied and tested as a function of resources and that these resource pools is a means of capacity management. Consequently, (RCA) focuses on the overall concept of resources and their pooling in resource pools in order to include costs associated with each type of resource and to know the relationship between each resource. The construction of resource pools depends on the basic idea, that the resources must include all costs. This method not only focuses on the relationship of resources to activities, but also on the interrelation between resources due to the presence of some resources to serve other resources (Al-Rawi & Abd al-Hafiz, 2018).

Nature of costs: The main advantage of RCA technology is that it separately tracks primary costs and secondary costs in each complex, and calculates separate rates for fixed and proportional costs (Balakrishnan, Labro, &

Sivaramakrishnan, 2012).

Using the cost model on a quantitative basis: The resource consumption accounting technique relies on measuring resource outputs in the form of quantitative units. These units are represented in direct labor hours, number of kilowatts of electricity, number of hours of machine rotation, etc. The planned and actual cost is allocated to different cost units on the basis of the quantities consumed as outputs of these resources, taking into account the causal relationship between the actual resources consumed and the unit cost and then the monetary value (Al-Rawi & Abd al-Hafiz, 2018).

Steps to implement Resource Consumption Accounting (RCA)

In order to implement the resource consumption accounting, there are several steps that must be followed, namely: -

- The first step is the process of collecting resources in the economic unit within resource cost pools. This step requires verifying the interrelationships between resources and identifying resource pools, depending on the similarities and relationships between resources such as the human resource pool, the machinery resource pool, the electricity resource pool and the labor resource pool (Kbelah et al., 2019).
- The costs of each resource pool are classified into primary costs and secondary costs, and then the total costs are calculated (Kurtlu, 2016).
- The costs of each resource pool are divided into two parts: fixed costs and proportional costs. This division is very important because the fixed costs are distributed according to the theoretical capacity and the proportional costs are distributed according to the production quantity of the resource pool. For example, direct work is seen as a proportional cost, while hours spent in training are a fixed cost component (Köse & Ağdeniz, 2017).
- The costs collected in the resource pools are allocated and allocated as fixed and proportional to the activities through resource factors and thus the costs of the activities are determined (Kurtlu, 2016).
- Determine the consumed resources or idle energies in order to determine who is responsible for them and take corrective measures (Ahmed & Moosa, 2011).
- Distribution of activity costs to products and determination of the cost of each product (Kbelah et al., 2019).

Balanced Scorecard

The Balanced Scorecard translates the mission and strategies of the economic unit into a comprehensive set of performance measures, providing the framework for the strategic measurement system, using a balanced set of measures for both financial and non-financial performance (Gomes & Romão, 2019). Strategies are described as tailored plans to achieve the goals of economic unity (Alao, 2013). The main argument of the balanced scorecard is that financial measures are not sufficient to measure the performance of economic units and as a result, three perspectives have been added to complement the traditional financial indicators that focus on customers, internal

processes, learning and growth (Mamabolo & Myres, 2020). BSC helps economic units to track all important aspects of economic unity strategy as well as achieve continuous improvement of economic unity and teamwork (Awadallah & Allam, 2015). It reduces information overload by limiting the number of metrics used, and it also forces managers to focus on a set of more important metrics. BSC inherits many early basic management concepts such as Taylor's productivity-based performance measurement (1911) to enhance learning and performance, Redway's (1956) balanced approach to performance measurement, and Drucker's 1954 (MBO) concept of management by goal (Tan & Sitikarn, 2019). The Balanced Scorecard uses information and communication technology (ICT) to assist senior management in implementing and monitoring the organizational strategy (Antonsen, 2014). The balanced scorecard provides great potential for economic units in terms of contributing well to improving performance and improving performance measurement. Kaplan and Norton mention that (BSC) is a strategic performance management system and not just a system for measuring the performance of an economic unit (Andry & Sebastian, 2018), as the concept (BSC) was awarded the best theoretical contribution in science 1997 by the American Accounting Association (Tan, 2019). BSC is defined as a set of measures that give key managers a quick but comprehensive view of the business and includes financial metrics that illustrate the results of actions already taken. It also complements financial metrics with operational metrics related to customer satisfaction, and related processes. Cell, innovation and improvement activities for the economic unit (Kaplan & Norton, 2005). As well as an integrated set of performance measures derived from and supported by the Economic Unity strategy (Garrison et.al, 2018). It was defined by researchers as one of the techniques of management accounting that translates the vision and strategy of the economic unit into a comprehensive and integrated set of performance measures, working to improve performance and facilitate communication within the economic unit. It uses both financial and non-financial measures in a balanced framework in order to achieve the vision of the economic unit and its strategic objectives.

Balanced Scorecard Perspectives

Financial Perspective: The primary purpose of the financial perspective is to increase shareholder value (Kefe, 2019). The financial perspective of the strategic balanced scorecard is to enable management to define the metrics used to evaluate the long-term success of the economic unit as well as the factors that determine this success and future results (Giemza).

Customer perspective: There is an increasing awareness of the importance of customer focus. The customer perspective represents the relationship between an economic unit and its customers. It is an important perspective in helping the economic unit improve its financial results. It also defines how economic units distinguish themselves from competitors to attract customer retention and deepen the relationship with the target customers (Abdalkrim, 2014).

Internal operations perspective: This perspective provides an overview of the

economic unit on what must be done internally to meet customer expectations productively and efficiently (Nurosidah et.al, 2015). The balanced scorecard in this perspective leads the economic unit to define new methods and activities in order to reach its customers and financial goals, as well as to include the renewal process in the perspective of internal operations. The economic unit can search for growing and emerging customer needs and can produce new products and services to satisfy them (Ayvaz & Pehlivanli, 2011).

Learning and growth perspective: Learning and growth are two main features that every economic unit must integrate with its strategies. There are different types of leading indicators and intangible assets that can be used to depict these features, for example human capital, organizational capital, informational capital, culture, alignment, and teamwork (Al-Hosaini & Sofian, 2015) (Andry & Sebastian, 2018). This perspective focuses on the intangible assets of the economic unit and in particular on the internal skills and capabilities of the employees needed to support internal processes to create value (Khaled & Bani-Ahmad, 2019).

Data and Methodology

The applied study approach was followed in order to apply the resource consumption accounting technique and the Balanced Scorecard and the effect of their integration on evaluating the performance efficiency of the economic unit, the research sample is the men's clothing factory in Najaf was chosen as an applied study in order to reach the results of this study. Data were collected from the financial reports and cost reports for the year 2018 of the research sample. Field visits and personal interviews were also conducted with department managers and employees.

Results

The overall results of this study can be summarized in three sections: the current cost system, the application of the resource consumption accounting technique, a comparison of evaluating the efficiency of the economic unit performance using the balanced scorecard before and after the use of the resource consumption accounting technique.

The current cost system in the men's clothing factory in Al-Najaf: The men's clothing factory in Al-Najaf is one of the factories affiliated to the textile factory in Hilla, which in turn is one of the formations of the Ministry of Industry and Minerals, and the factory was established in 1985 and the factory produces 44 products with different models. The cost of the product is determined by distributing the total costs to the products according to one direction, which is the time of sewing the product. It does not take into account the amount of raw materials spent for production, nor the quality of fabrics and other materials used in production. Application of resource consumption accounting technique consists the following steps:

1. Defining resource pools and directives

In this step, the resources of the economic unit were divided into four resource

pools. It is a complex of labor resource and includes salaries, cash wages, transportation of workers, travel, delegation, training, qualification, expenses and other wages. The material supplier includes raw materials, raw materials, oil and gas materials, oils and lubricants, packaging materials, supplies, tasks, stationery and other materials. The maintenance resource complex includes maintenance of buildings, constructions, roads, machinery maintenance, equipment, maintenance of transport and transmission means, maintenance of tools and molds, and maintenance of office furniture and equipment. The extinction resource, which includes the Depreciation of buildings, constructions and roads, the Depreciation of machinery and equipment, the depreciation of transportation and transportation means, the outage of numbers and molds, and the depreciation of furniture and office equipment.

2. Dividing the resource pools into fixed and proportional costs

The resource pool costs are divided into fixed and proportional costs. The amount of input consumed is classified as fixed costs if it does not change with the amount of output volume. They are classified as proportional costs if they change. Fixed cost rate is calculated based on theoretical capacity and proportional cost rate based on process capacity.

3. Allocation of costs collected in resource pools to activity centers

In this step, the costs of resource pools are allocated to the activity centers. According to the principle of causation in accounting for resource consumption, activities consume resources and products consume activities. The activities that consume resources in the economic unit were determined as follows:

1-Design activity
2-Technology activity
3- Programming activity
4- Separation and preparations activity
5- Sewing activity
6- Ironing activity
7- Packaging activity
8- Quality control activity
9- Maintenance activity
10- Marketing activity
11- Administrative activity

To clarify the mechanism for allocating resource pools to activities, for example the resource for cash salaries and wages. This resource is allocated to the activities through a special directive for the supplier represented by the direct working hours for each activity that consumed this resource multiplied by the rate of fixed and proportional costs.

*((Activity share from the resource * fixed cost rate) + (Activity share from the resource * Proportional cost rate)).*

After identifying the activities and their directives, then we extract the activity load rates. This is done through the following equation

(Activity cost Rate = Total Cost of Activity / Activity rate).

The following table shows the calculation of activity load rates as follows:

Table 1. Total activity cost and average activity costs

Activity	Total costs of activity	Activity driver	Rate of activity
Design activity	25033745.46	58	431616.3010
Technology activity	45217574.20	7	6459653.4571
Programming activity	33983365.53	153	222113.5001
Arthrosis activity and preparations	843735175.87	46152506	18.2814
Sewing activity	7487595940.46	154381453	48.5006
Cauterization activity	552049006.11	2847285	193.8861
Packaging activity	331400905.59	16389337	20.2205
Quality control activity	170290213.93	34030941	5.0039
Maintenance activity	407383925.26	203381244	2.0030
Marketing activity	92791742.36	31416000	2.9536
Administrative activity	574412514.96	31416000	18.2840

4. Determining idle capacity

After allocating the resource costs to the activities, we can then extract the idle capacity by comparing the realized costs of the economic unit with the costs allocated according to the resource consumption accounting technique.

Table 2. Idle Capacity Costs

Resource	Incurred costs	Allocated costs under RCA	Idle capacity costs
Labour resource			
Salaries and wages	9,080,652,207	4,667,336,915.71	4,413,315,291.29
Transportation of the workers	185,849,403	75,677,876.90	110,171,526.10
Travel and dispatch	45,053,000	34,540,633.33	10,512,366.67
Training and rehabilitation	1,250,000	585,616.43	664,383.57
Other expenses and wages	474,897,094	402,271,652.10	72,625,441.90
Materials resource			
Raw materials and raw materials	3,556,701,905	3,556,701,905	0
Petroleum materials	139,891,580	138,930,830.01	960,749.99
Gas	49,000	30,153.84	18,846.16
Oils and lubricants *	39,339,708	37,271,264.16	2,068,443.84
Packing materials	202,002,849	202,002,849	0
Supplies and tasks	17,800,751	11,236,724.06	6,564,026.94
Stationery	8,988,750	5,659,583.33	3,329,166.67
Other materials	105,437,511	69,464,713.14	35,972,797.86
Maintenance resource			
Maintenance of buildings, structures and roads	2,086,000	1,303,750.00	782,250.00
Maintenance of machinery and equipment	11,201,000	10,925,677.94	275,322.06
Maintenance of transmission and transmission media	4,529,000	2,829,073.97	1,699,926.03
Maintenance number and molds	295,000	94,263.81	200,736.19
Maintenance of furniture and office equipment	9,750,000	4,567,808.24	5,182,191.76
Depreciation resource			
The depreciation of buildings, constructions and roads	661,618,156	413,511,347.51	248,106,808.49
The depreciation of machinery and equipment	1,372,483,854	867,977,720.09	504,506,133.91
The depreciation of transmission and transmission media	24,656,676	15,401,978.44	9,254,697.56
The depreciation of the equipment and templates	3,570,047	1,135,151.94	2,434,895.06
The depreciation of office furniture and equipment	94,850,097	44,436,620.78	50,413,476.22
Total	16,042,953,588	10,563,894,109.73	5,479,059,478.27

The above table shows the costs incurred by the products before using the resource consumption accounting technology by (16,042,953,588) dinars and

when using the technology, it became after that (10,563,894,109.73) dinars due to extracting idle capacity costs amounting to (5,479,059,478.27) dinars, at a rate of (34.15%). After determining the costs of activities, their drivers, and activity load rates, we allocate activity costs for products by multiplying the activity load rate in the vector for each product. Then we extract the cost of each product by dividing the quantity of each product.

Table 3. Costs assigned to products and product cost per unit

#	products	Costs assigned to products	Number of units produced	The cost per unit
1	Men's suit (various models)	79689605.79	3069	25965.98
2	Blessings	372794352.81	28196	13221.53
3	Défense suit	1236222824.59	96141	12858.44
4	Men's special suit	9674437.87	261	37066.81
5	Semi-factory military suit	49497433.96	62150	796.42
6	Special military suit	593447.07	28	21194.54
7	Two-piece business suit	3259339.14	205	15899.22
8	Electrical work suit	3739782.35	274	13648.84
9	Business suit (Model Number 4132)	12221747.56	1007	12136.79
10	Work suit north oil and gas pipelines	4723246.47	316	14946.98
11	Drilling company business suit	9091898.36	816	11142.03
12	Traffic suit	587207.28	5	117441.46
13	Bugfix operations	811125168.29	488772	1659.52
14	Men's single jacket	5092334.73	161	31629.41
15	Single Jacket (Various M.)	3407808.73	146	23341.16
16	Collector's Rob	442127.64	40	11053.19
17	Rob judges	12130822.09	2044	5934.84
18	Threshold Pants	735281.70	38	19349.52
19	Business suit pants	247570.24	5	49514.05
20	Girl's Pants	1609815.25	579	2780.34
21	Mens pants	1381830.81	52	26573.67
22	Men's Pants (Model Number 3046)	858244.47	54	15893.42

23	Men's Pants (Various Models)	6657001.50	695	9578.42
24	Special single pants	624593.58	19	32873.35
25	Boy's pants	2708234.35	807	3355.93
26	Boys' Pants (Model Number 2058)	237336.70	2	118668.35
27	Health sheets	531834710.59	1605930	331.17
28	Latex fitted sheet	13724797.54	4150	3307.18
29	Girl's Bra	1693313.90	500	3386.63
30	Thiba Husseiniya work	285443.55	14	20388.83
31	Waistcoat of the Ministry of Defense	415671.79	45	9237.15
32	The sign of Ibn al-Haytham	5360964.53	1000	5360.96
33	Bow	537086.26	1100	488.26
34	Girl's shirt	2603436.28	592	4397.70
35	Half dress shirt	755674.12	107	7062.37
36	Boys' shirt	2863679.13	738	3880.32
37	Kaon health	6728842344.58	10892008	617.78
38	A rose	254493.91	113	2252.16
39	Small pillow	18192363.51	45528	399.59
40	Small pillow (model number 49017)	88357003.52	397250	222.42
41	Large pillow (model number 49016)	534154415.22	2753415	194.00
42	Vest for daughters	481424.73	79	6093.98
43	Vest for guys	1087512.00	78	13942.46
44	Vest for children	3096281.24	808	3832.03

Implementation of balanced scorecard

In this paragraph, the Balanced Scorecard technique will be applied by using some indicators for its four perspectives. By relying on the cost data of the economic unit before using the technique of accounting for resource consumption and afterwards, an integration will be created between the accounting of resource consumption and the balanced scorecard to evaluate the efficiency of the economic unit's performance.

Financial perspective:

The purpose of the financial perspective is to increase the value of shareholders, and this perspective in the strategic balanced scorecard is to enable management to define the metrics used to evaluate the long-term success of the economic

unit by increasing revenues and reducing costs. Follows:

• The ratio of the manufacturing cost to the total costs:

As this measure shows the relationship between the manufacturing cost and the total economic unit costs. If the ratio of the manufacturing cost to the total economic unit costs decreases, this indicates a decrease in the manufacturing costs. Hence a decrease in the total economic unit costs. The increase in the manufacturing cost to the total economic unit costs is an indication of an increase in manufacturing costs. Consequently, an increase in the total cost of the economic unit. This indicator can be measured through this equation as follows:

The ratio of the manufacturing cost to the total costs= (manufacturing costs/ total costs) × 100

- **The ratio of sales revenue to total economic unit costs:**

This measure shows the relationship between sales revenue and total economic unit costs. If the percentage of sales revenue to total economic unit costs increases, evidence of an increase in sales revenue and a decrease in total costs. As the percentage of sales revenue decreased from the total costs of the economic unit, evidence of an increase in the total costs of the economic unit. This indicator can be measured through this equation as follows:

The ratio of sales revenue to total costs= (total revenues⁄total costs) × 100

The following table shows the calculation of financial perspective indicators as follows:

Table 4. Indicators of Financial Perspective

Target	scale	Calculation method	Indicators under economic unit data	Indicators under integration between BSC and RCA
Cost reduction	(manufacturing costs/ total costs) × 100 (manufacturing costs / total costs RCA) × 100	15832838989 / 16042953588 × 100 9896689852.41* / 16042953588 × 100	%98.69 -	- %61.68
sales	(total revenues/total costs) × 100 (total revenues/total costs RCA) × 100	8052471000 / 16042953588 × 100 8052471000* / 10563894109.73 × 100	%50.19 -	- %76.22

* Manufacturing cost according to resource consumption accounting technique = total cost - marketing costs - administrative costs

The above table shows that the manufacturing cost percentage based on the economic unit data has achieved (98.69%). Whereas, according to the integration between resource consumption accounting and the balanced

scorecard, it has achieved (50.19%), which indicates a significant reduction in manufacturing costs when using resource consumption accounting technology and the balanced scorecard. As for the indicator on sales revenue on total costs, it was achieved according to economic unit data (50.19%). While according to the integration between accounting for resource consumption and the balanced scorecard, (76.22%) was achieved. This indicates a decrease in total costs and an increase in sales when using the Resource Consumption Accounting and Balanced Scorecard technique. It is noticed from the foregoing that the use of resource consumption accounting technology and the Balanced Scorecard will greatly contribute to reducing the economic unit costs and thus increasing the efficiency of the economic unit performance.

Customer perspective

The customer perspective measures the relationship between an economic unit and customers through its market share, customer retention, new customer acquisition, customer satisfaction, and customer profitability. The criteria that can be used in the economic unit of the research sample have been identified as follows:

The ratio of advertising cost to the total cost of the economic unit:

This measure shows the relationship between advertising costs and the total cost of an economic unit. If the percentage of advertisements cost increases over the total cost of the economic unit, evidence of the economic unit's interest in advertising its products in order to increase its market share and acquire new customers. If this percentage decreases, this indicates that the economic unit is less interested in increasing its market share and acquiring new customers. It can be calculated using this equation as follows:

The ratio of the cost of advertisements to the total costs= (advertisements costs⁄total costs) × 100

The ratio of the cost of selling services to the total cost

The sales services of the economic unit are the research sample, free delivery of the products sold. If the percentage of the cost of sales services increases over the total cost of the economic unit, evidence of the economic unit's interest in gaining customer satisfaction and keeping them in good condition If the percentage decreases, this indicates a lack of interest in the economic unit for customer satisfaction and maintenance.

Ratio of the cost of selling services to the total costs= (selling costs⁄total costs) ×100

The following table shows the calculation of the customer perspective indicators, as follows:

Table 5. Indicators of customer Perspective

Target	scale	Calculation method	Indicators under economic unit data	Indicators under integration between BSC and RCA
Market share	(advertisements costs/ total	1829000 × 100	%0.011	-

	costs) × 100 (advertisements costs/ total costs RCA) × 100	16042953588 1829000×__100 10563894109.73	-	%0.017
Customer satisfaction	(selling costs/total costs) ×100 (selling costs/total costs RCA) ×100	* 1166000 × 100 16042953588 1166000×__100 10563894109.73	%0.007 -	- %0.11

It is noticed from the above table that the percentage of advertising costs based on the economic unit data has achieved (0.011%). Whereas, according to the integration between the accounting of resource consumption and the balanced scorecard, it achieved a high percentage (0.017%). This indicates the economic unit's interest in increasing its market share and gaining customers. As for the index of selling service costs on total costs, it was achieved according to economic unit data (0.007%). Whereas, according to the integration between resource consumption accounting and the balanced scorecard, a high percentage (0.11%) was achieved. This indicates the interest of the economic unit in gaining and maintaining customer satisfaction when using the integration between resource consumption accounting technology and the balanced scorecard.

Internal operations perspective

This perspective focuses on what the economic unit must do internally to satisfy the customers' desires. For example, improving product quality as well as reducing costs by improving the internal processes of the economic unit in order to satisfy customers. The criteria that can be used in the economic unit of the research sample have been identified as follows:

- **The ratio of quality control costs to the total economic unit costs:**

The economic unit seeks to provide high quality products by examining the raw materials before entering the production process. It is also examined during production (semi-finished) and examined after the end of the production process (a complete product) in order to obtain a product that matches the specifications and is free from defects. The higher the percentage of the quality control costs to the total economic unit costs, evidence of the economic unit's keenness to provide the customer with high quality products. It can be calculated by the following equation:

Ratio of cost of quality control to total costs= (costs of quality control⁄total costs) ×100

- **The ratio of costs of worker services to the total costs:**

The workers' services are represented by the sums spent on the workers in the economic unit. For example, transportation, food, clothing, health insurance, etc. Whenever the economic unit provides services to the worker, this improves the worker's performance, which leads to an increase in production and a reduction in costs. The increase in the percentage of services provided to the worker to the total economic unit costs is an indication of the economic unit's keenness to meet the requirements and needs of the worker, which will be

reflected in the increase in production, reducing costs and improving performance. It can be calculated according to the following equation:

ratio of costs of worker services= (costs of worker services ⁄total costs) ×100

- **Manufacturing cost to the number of units produced:**

This represents the relationship between manufacturing costs and the number of units produced. The higher the costs, evidence of the increase in the unit cost produced. In the event that it decreases, evidence of a decrease in the cost of the productive unit, and this is what the economic unit seeks It can be calculated according to the following equation:

Manufacturing cost to the units produced= manufacturing costs ⁄units produced

The following table shows the calculation of the internal operation's perspective indicators, as follows:

Table 6. Indicators of internal operations Perspective

Target	scale	Calculation method	Indicators under economic unit data	Indicators under integration between BSC and RCA
quality	(costs of quality control/total costs) ×100 (costs of quality control/total costs RCA) ×100	196377626 × 100 / 16042953588 196377626× 100 / 10563894109.73	%1.22 -	- %1.85
Supporting the workers in order to improve work performance and increase productivity	(costs of worker services /total costs) ×100 (costs of worker services /total costs RCA) ×100	185849403 × 100 / 16042953588 185849403 × 100 / 10563894109.73	%1.15 -	- %1.75
Reducing manufacturing costs	manufacturing costs /units produced manufacturing costs RCA /units produced	15832838989 × 100 / 16389337 9896689852.41 ×100 / 16389337	د 96604.51 -	- د 60384.93

It is noted from the above table that the ratio of the cost of quality control to the total cost of the economic unit, based on the data of the economic unit, has been achieved (1.22%). Whereas, according to the integration between the accounting of resource consumption and the balanced scorecard, a high percentage was achieved (1.85%). This indicates the interest of the economic unit in providing customers with high quality products. As for the indicator on the cost of worker services on the total cost of the economic unit, it was achieved according to the economic unit data (1.15%). While according to the

integration between the accounting of resource consumption and the balanced scorecard, a high percentage (1.75%) was achieved. This indicates the interest of the economic unit in the worker in order to improve performance and increase worker productivity. As for the indicator on the manufacturing cost to the number of units produced, according to the economic unit data, it has achieved (96604.51) dinars. While according to the integration between resource consumption accounting and the balanced scorecard, it has achieved (60384.93) dinars, which indicates a decrease in the unit cost when integrating between resource consumption accounting and the balanced scorecard.

Learning and growth perspective

This perspective focuses on the internal skills and capabilities of the employees, and on the economic unit developing the skills of the worker through training courses as well as encouraging the worker and motivating them through rewards. It also focuses on providing more accurate and timely information to the worker. The criteria that can be used in the economic unit of the research sample have been identified as follows:

A- Ratio of worker training costs to total cost:

This ratio represents the relationship between worker training costs and total economic unit cost. The higher the ratio of worker training costs to the total cost of the economic unit, evidence of the economic unit's interest in training the worker and increasing their skills. If the ratio of worker training costs to the total cost of the economic unit decreases, this indicates that the economic unit is not interested in increasing worker skills. It can be calculated according to the following equation:

Ratio of worker training costs to total cost= (training costs/total costs) ×100

B- Ratio of bonuses to total costs:

This ratio represents the relationship between the incentive bonuses and the total economic unit costs. The higher the percentage of incentive rewards to the total economic unit costs, evidence of the economic unit's interest in encouraging the worker through incentive rewards. If the ratio of the incentive bonuses to the total economic unit costs decreases, evidence of the economic unit's lack of interest in encouraging the worker through rewards. It can be calculated according to the following equation:

Ratio of bonuses to total costs= (bonus /total costs) ×100

The following table shows the calculation of the indicators of the learning and growth perspective, as follows:

Table 7. indicators of Learning and growth perspective

Target	scale	Calculation method	Indicators under economic unit data	Indicators under integration between BSC and RCA
Training the	(training costs/total costs) ×100	$\frac{1250000}{16042953588} \times 100$	%0.007	-

workers	(training costs/total costs RCA) ×100	1250000×_100 / 10563894109.73	-	%0.011
bonus	(bonus / total costs) ×100	55531500 × 100 / 16042953588	%0.34	-
	(bonus / total costs RCA) ×100	55531500 ×_100 / 10563894109.73	-	%0.52

The table 15 shows that the ratio of worker training costs to total economic unit costs based on economic unit data has achieved (0.007%). Whereas, according to the integration between the accounting of resource consumption and the balanced scorecard, it achieved a high rate (0.011%), which indicates the interest of the economic unit in increasing worker skills through training. As for the index of incentive rewards to total economic unit costs, it was achieved according to economic unit data (0.34%). Whereas, according to the integration between the accounting of resource consumption and the balanced scorecard, a high percentage (0.52%) was achieved, which indicates the interest of the economic unit in encouraging the worker through rewards. The following figure shows the balanced scorecard under the (RCA) application of the research sample and is as follows:

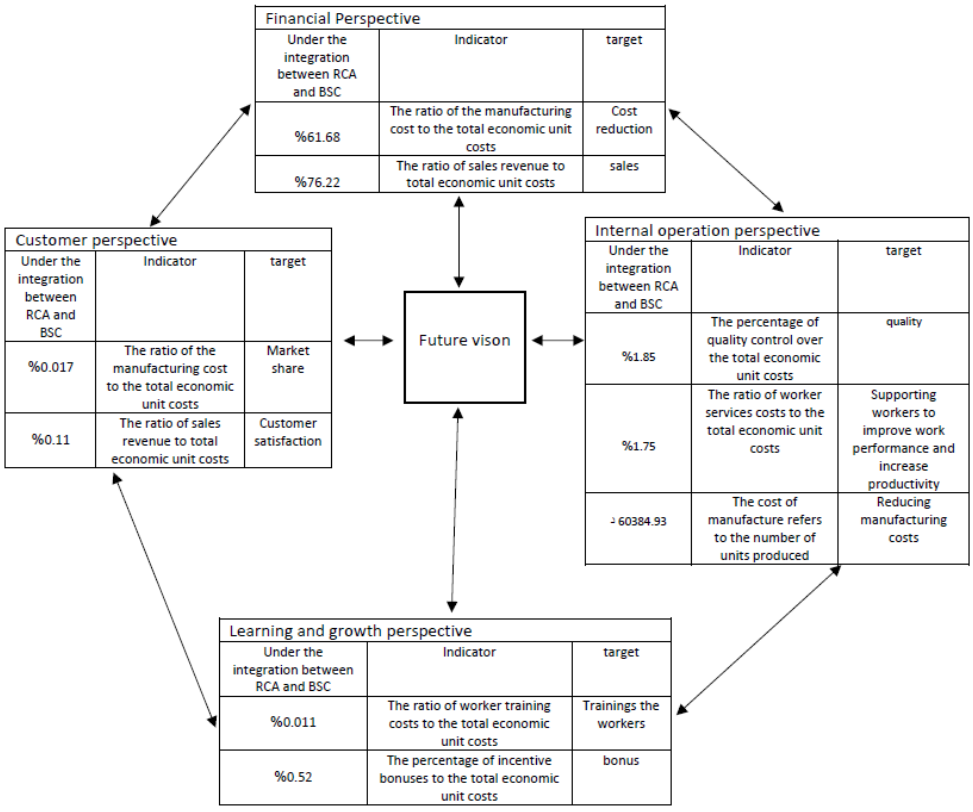

Figure 1. Implementation of Balanced Scorecard under RCA

Through the above, it is possible to prove the hypothesis that the use of resource consumption accounting technology leads to an increase in the efficiency and

effectiveness of the financial and non-financial indicators of the Balanced Scorecard perspectives, which leads to an increase in the efficiency and effectiveness of the performance of the economic unit.

Summary and Conclusions

The criticism faced by traditional systems that are no longer able to provide appropriate information for decision-making by management. The reason for this is its reliance on financial indicators and its lack of reliance on non-financial indicators. This has led to the need to use new techniques to manage costs that provide management with appropriate information for decision-making, planning and control. The integration between resource consumption accounting and the balanced scorecard leads to benefit from the outputs of resource consumption accounting in strengthening the indicators of the performance evaluation process within the economic unit. The idle capacity rate when applying the resource consumption accounting technology amounted to (34.15%) equivalent to (5,479,059,478.27) dinars. This indicates that the resources of the economic unit are not used optimally. When applying the resource consumption accounting technique, it reduces industrial costs by (5936149136.59) dinars. As the industrial costs according to the company's data amounted to (15832838989) dinars, and when applying the technique of accounting for resource consumption, it became (9896689852.41) dinars. A significant decrease in the total costs was observed after applying the resource consumption accounting technique, as it was according to the company’s data by (16042953588) dinars, and after applying the (RCA) technology, it became by (10563894109.73) dinars. The integration between resource consumption accounting and the balanced scorecard leads to an increase in the efficiency of the financial and non-financial indicators of the four perspectives of the balanced scorecard (the financial perspective, the customer perspective, the internal operations perspective, and the learning and growth perspective) and thus increasing the performance evaluation of the economic unit's research sample.

Accordingly, the economic unit should be urged to know, learn and adopt contemporary cost-effective and administrative techniques in response to the changes in the contemporary business environment surrounding the economic unit, in which these technologies contribute greatly to providing management with financial and non-financial information for decision-making and planning and contribute to the optimal use of the economic unit’s resources and reducing costs. The economic unit should adopt the application of integration between resource consumption accounting (RCA) and the Balanced Scorecard (BSC) because of its great role in increasing the efficiency of its performance. The economic unit must establish a database in order to provide the financial and non-financial information necessary to provide contemporary cost-effective technologies with the necessary information, as accounting for resource consumption and a balanced scorecard require comprehensive information about the economic unit. It is necessary to train workers on modern techniques of managerial accounting and cost accounting in order for them to have the sufficient skill to apply these techniques efficiently and effectively.

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