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The impact of accounting for material flow costs in reducing costs: Exploratory study

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Abstract: - *The study aims to test the correlation between the two variables of the study by accounting for material flow costs and reducing costs, and testing the pattern of impact that the application of material flow cost accounting makes in reducing costs. To achieve the objectives of the study was surveyed a random sample of academics in accounting disciplines, and specialists in the field of cost accounting and management in Iraqi industrial companies, by preparing a questionnaire and distributing it to the sample of the study, and included the questionnaire three axes, the first axis information on the sample of research to analyze the characteristics of the sample, and the second axis included (11) questions about the independent variable accounting for the costs of material flow, and the third axis included (11) questions on the variable supra cost reduction and analysis of the resolution data using statistical program (SPS) And use the Pearson correlation coefficient to test the correlation between the two variables and the simple linear regression to test the relationship effect.*

The study of the analysis of the data of the resolution found a correlation of a statistically indicative correlation between the application of material flow cost accounting and cost reduction, as well as a moral effect for applying material flow cost accounting to reduce costs.

The study recommended the need to apply accounting for the costs of the flow of materials because of its importance in providing information by tracking the materials involved in the production process and measuring their outputs and identifying the final products and emissions and residues and thus reducing their costs and improving the production process and reducing their environmental effects that lead to reducing the cost of products.

Keywords: - *Material flow accounting, cost reduction.*

Introduction:

Rapid and continuous developments and changes in the modern business environment in all areas of economic, environmental, social, technology and communications push economic units to search for modern methods and methodologies to produce products at low cost as well as produce products that meet the wishes of customers in terms of quality and environment to maintain their market position, and accounting for the costs of the flow of materials is one of the most prominent environmental management accounting techniques capable of providing information to help produce Products at low cost. Working through them to provide positive products as well as identifying negative products to reduce it and thus reduce costs by reducing waste, loss and energy.

Research methodology

Research problem

Most of the economic units in Iraq suffer from high product costs, which has affected the increase in prices compared to the prices of competing imported goods products, which became necessary for economic units to look for information methods

and methods to produce products of low cost by economic and producer free of defects, residues and emission by environmental meeting the requirements of the customer.

The research is to answer the following questions:

Is there a statistically significant correlation between accounting for material flow costs and cost reduction?

Does the application of material flow cost accounting reduce costs?

Research hypothesis:

The research seeks to achieve the following two assumptions:

1. There is a statistically significant correlation between accounting for the costs of the flow of materials and reducing costs.

There is a statistically significant effect relationship to accounting for the costs of material flow in reducing costs.

Research goal:

In light of the nature of the search problem the main objectives of this research consist:

1. Identify accounting for the costs of the flow of materials and their importance and the benefits of their application, and the steps of their application and their role in reducing costs.
2. Testing the correlation between the two variables of the study of accounting for the costs of material flow and reducing costs.
3. Testing the pattern of impact that the application of material flow accounting has in reducing costs.

The importance of research:

The importance of searching in the following:

1. The issue of accounting for the costs of the flow of materials is relatively recent in Iraq due to the lack of research in this aspect.
2. Material flow cost accounting provides important information on the production process to determine the amount of waste for materials and energy, thus reducing the damaged materials and energy.
3. Reducing costs is one of the important topics that economic units seek to achieve.

Research sample:

The research sample was selected in a random manner, consisting of academics in accounting disciplines, and specialists in the field of cost and administrative accounting in Iraqi industrial companies.

Literature review

A case study (van der Poll, Fakoya, 2012) this paper aims to integrate MFCA with current environmental management systems (EMS) in the brewery process to improve waste reduction decisions and increase environmental performance. The paper suggests that an important effect for small breweries in South Africa is the availability of cost and volume waste information for improved waste reduction decisions for an improved waste reduction strategy. The study (Schmidt, 2015) the study aims to demonstrate the importance of accounting for the costs of material flow in obtaining clear information on material and energy costs and thus contribute to improving resource efficiency, the study was applied in the aluminum industry and the study found to expand the scope of accounting for the costs of material flow through systematic improvements related to energy modelling.

The Study (Doorasamy & Garbharran , 2015) aims to demonstrate the effectiveness of the adoption of the MFCA approach, highlight unproductive production costs and assist managers in strategic decision-making processes with regard to the implementation of cleaner production processes. This paper is based on a case study of the KwaZulu-Natal paper manufacturer, which found that MFCA technology highlights the value of unproductive production costs, enabling managers to assess the financial and environmental benefits of adopting cleaner production technologies and technologies. The company's study found mfca merged with the current EMS (EMS) system to ensure its future sustainability.

The Study (Salim & Amir & Sulaiman) (2017) aims at the extent to which Material flow cost accounting (MFCA) is applied in industrial sectors, and understands the role of environmental uncertainty (PEEU) and supplier integration (SI) in the implementation of MFCA, and thus examines the impact of MFCA implementation on the environmental and economic performance of companies. The search model was experimentally tested based on an online survey model. Questionnaires were emailed to 1,200 randomly selected industrial companies. The responses were usable 123 companies. The results of the survey of 123 companies showed a low level of MFCA implementation. Furthermore, PLS analysis indicated that companies that are aware of environmental uncertainty are less motivated to apply MFCA. The study also found that SI has had a direct positive impact on mFCA implementation since companies decided that mfcA implementation was more capable of achieving better environmental and economic performance.

Conceptual Framework: Material Flow Cost Accounting (MFCA)

2.1 MFCA concept

The concept of material flow cost accounting was proposed by professor Bernd Wagner in Augsburg, Germany, in 1990 as an accounting technology that works to protect the environment and focuses on tracking waste, waste and emissions and helps to improve economic and environmental performance (NPC, 2015, 1) and mFCA accounting is one of the most prominent environmental management accounting technologies (EMA) which has received widespread attention. Because of its ability to provide information on waste, emissions and waste and use that information in the decision-making process (Tajelawi & Garbharran, 2015:3641; Sahbat et al., 2018: 50), many researchers and bodies have provided different knowledge to account for the costs of material flow, which has been defined as the accounting method used to correct material flows and thus provide management with important information, all of which will ultimately lead to appropriate decision-making and thus raise the efficiency of manufacturing (Hyršlová et al. , 2011: 4) defined by ISO-14051 as "a tool for measuring the flows and balances of materials in both the processes or production lines of physical and monetary units (Christ & Burritt, 2016,1) it is known as a new way to record and measure costs and aim to reduce costs and reduce environmental impacts by reducing waste as well as improving productivity, enabling the economic unit to gain a competitive advantage in both modern environmental and monetary processes (Kovanicova, 2011,7) is one of the advanced techniques for measuring material flows and energy in both quantity and value in terms of quantity and value in terms of quantity and value. In conclusion, the researchers believe that accounting for the costs of the flow of materials is one of the applications of environmental management accounting, which provides information by tracking materials involved in the production process, measuring their outputs, identifying final products, emissions and residues, thus reducing their costs, improving the production process and reducing their environmental impacts.

Benefits of Material Flow Cost Accounting (MFCA)

The benefits of using material flow cost accounting can be determined by ATS (Jasch, 2001:88):

1. Reducing costs and positive impacts on the environment as a result of improved material efficiency (i.e. reducing waste and reducing material use per product)
2. Influence the development of products, techniques and the use of new methods based on the improved investment accounting database
3. Helps improve the quality of information systems thanks to consistency and targeted data system.
4. Helps improve the organizational structures and procedures of the economic unit by applying the flow of materials;
5. Helps in communication and coordination among the departments of the economic unit

instead of isolation within the departments of the economic unit (departments, cost centers, etc.);

6. Increased staff and management perception with regard to the structure of the flow of materials

Helps to increase material productivity rather than reduce the workforce.

2.3 The importance of accounting for material flow costs (MFCA)

The importance of accounting for material flow costs (MFCA) is highlighted by (Hajek et al., 2008: 142 :)

1. Economic level: Where accounting for the costs of the flow of materials focuses primarily on the cost of materials being one of the most important elements in the economic unit compared to others, under traditional accounting systems there is not enough detailed information on the cost of materials and how they pass in the economic unit, either under cost accounting the flow of materials is explained more accurately and in detail by linking the data of physical units with financial units.
2. Environmental level: Material flow cost accounting (MFCA) focuses on reducing costs by reducing the quantities of materials and energy consumed, resulting in positive effects, i.e. when using materials and energy better than it works to reduce waste and emissions that affect the environment, so the costs of material flow are not accountable important for management, through which economic efficiency can be maximized and environmental benefits improved.

Material flow cost accounting classifications

Material flow cost accounting can be classified into four basic types as follows:

(Doorasamy & Garb Harran, 2015:74)

1. The cost of materials: - All costs include main materials, sub materials and internal auxiliary materials in the production process, each of which can be defined Jakrawatana et al., 2015:4)) as follows:

A. Key materials: key materials in the initial process and materials under operation from the previous operation

B. Sub materials: Additives to the main materials to form part of the products created in each process.

C. Auxiliary materials: Materials used in each process but do not form part of the economic unit products such as detergents and solvents.

2. The cost of the system: - these are the costs incurred by the economic unit with materials, such as employment, consumption and general cost.
3. Energy cost: - Energy cost and all the costs of energy sources to enable operation for example, electricity, water, fuel, steam, heat and others.
4. The cost of waste management: - All costs incurred in dealing with material losses within the economic unit or the specified cost center. MFCA helps to make the quantity and material loss value more clearly by calculating the economic loss of non-productive output.

2.5 Steps to apply accounting for material flow costs

Material flow costs can be calculated through the following steps (according to the researchers):

(Ceílio, 2017:1)	(Kovanicová, 2011:1)	(Kasemset & Bonmee, 2017,745)
1- Product selection for analysis 2. Determining the limits and time period of the analysis process 3 Determining quantity positions 4 Quantifying material and energy flows 5 Identify material and energy flows financially 6 Identify positive and negative inputs and outputs 7- Develop an account model that collects information on the entire production process 8- Delivering the results to the managers of the economic unit. 9. Summary of the implementation of material flow cost accounting	1- Establishing and identifying quantity centers 2- Classifying each product into a positive product and a negative product 3- Costs related to the positive product and the negative product are recorded and the positive product is transferred to the next step to complete the calculation process 4- All costs are calculated in the manufacturing stages until the positive product is completed 5- All costs (manufacturing or services) include (material costs of all kinds main, assistance, subsidiary, energy costs, system costs and waste costs)	1. Product selection 2. Data collection 3.Calculating the cost of material flow 4. Identify in points of improvement 5.Providing solutions 6.Implementation of solutions 7.Evaluating solutions by recalculating the costs of material flow

2.6 The impact of accounting for material flow costs on cost reduction

Economic units have recently faced significant challenges in improving the efficiency of the business by providing information through which the use of materials and energy can be reduced, and it has been proposed to account for the costs of the flow of materials in order to provide information. (Christ & Burritt, 2016:112) The material flow cost accounting technology provides information designed to support analysis that guides material and energy flows and takes various decisions to improve resource efficiency and cost reductions by integrating environmental and economic objectives into one in order to contribute materials and energy less accurately and efficiently (3 Sygulla et al., 2011:) MFCA provides information on quantities and the cost of a passive product. It checks the balances in each operation, allowing it to provide management information on the main inputs for each operation, the number of products produced by the inputs, as well as the amount of waste generated during the production process, where detailed and accurate information is available on the production process. (Schmidt & Nakajima, 2013:363).

Accounting for material flow costs will provide information focused on reducing the amount of materials and energy consumed in the production process, which will reduce the volume of waste and emissions that affect the environment and thus preserve the environment from pollution as a result of reducing waste and emissions and producing flawless products (Hyršlová et al., 2011, 16).

The material flow accounting tool is one of the environmental management accounting tools designed to reduce environmental impacts and costs in one as a decision-making tool by managers, as it tracks waste, emissions and non-commodity products when they occur in the production process in order to reduce the costs of the economic unit by reducing waste and emissions and thereby improving the productivity of the economic unit, and its implementation contributes to improving financial and environmental performance when the results are analyzed into positive products and negative products (Fakoya, 2014:59). It can also produce the same amount of products with lower inputs and this will reduce the cost of the products and guide them that the establishment produces, reduce the consumption of natural resources and reduce the environmental impacts resulting, thereby achieving the benefits of material productivity and increased profitability (Kokubu et al., 2010: 17; Alkhafaji et al., 2018: 16)

Results: Presentation and analysis of field study results

1. Sources and methods of data collection:

Secondary sources represented by previous studies, approved references and scientific journals.

Preliminary sources were collected through a questionnaire prepared using previous studies, and the questionnaire was subjected to arbitration by specialized academics to ensure the apparent honesty of the research tool, and the questionnaire was distributed to a random sample of academics in accounting disciplines, and specialists in the field of cost and administrative accounting in Iraqi industrial companies, the resolution consists of three axes, the first axis includes general information about the respondent, the second axis included (11) paragraphs related to the independent variable accounting for the costs of the flow of materials, and the second included (11) paragraphs related to the variable dependent cost reduction and the five point Likert Scale was used.

2. The research community and its sample:

The research community is represented in academics in accounting disciplines, and specialists in the field of cost and administrative accounting in Iraqi industrial companies, and a random sample was selected distributed to them the number (66) questionnaire and recovered (61) questionnaires valid for statistical analysis.

3. Methods of statistical analysis

SPSS program was used for statistical analysis in data processing and analysis and in line with the nature of the research objectives, several methods of data analysis have been used:

- Stability test: Cronbachs Alpha coefficient was used
- Descriptive statistical methods: The statistical methods of corrective methods were used in order to obtain information on the characteristics and features of the study sample, and included (repetitions and percentages).
- Computational medium to measure the strength of the research variables, and the standard deviation to measure the degree of dispersion of the answers from the arithmetic medium
- Pearson Correlation Factor: Used to measure the extent to which there is a correlation between material flow accounting and cost reduction.
- Simple linear regression: Use to measure the extent to which variable material flow accounting can reduce costs.

2. Statistical analysis and test hypotheses:

- Honesty and stability test: The degree of consistency and internal consistency of the questions has been verified and through the program (SPSS) shows that Cronbachs Alpha shows that its value () is statistically acceptable value for alpha factories (60%) And more and more, this means that the Alpha Kronbach coefficient of sip outing is acceptable and the resolution results can be adopted,

Characteristics of the study community:

The sample of the study was classified according to two variables: educational attainment, years of experience and the following is an explanation of the characteristics of the study members in light of these variables:

Table (1)

Education / Sample	Diploma	Bachelor	Masters	PhD	Total
Total	2	19	16	24	61
Percentage	%3.3	%31.2	%26.2	%39.3	%100

Table (1) the educational achievement of the study sample, and the percentage of PhD and master's or equivalent holders was the highest at 65.5% of the research sample followed by the percentage of bachelor's and then diploma holder

Table (2) Distribution of study personnel according to years of experience

Total	15 or more	5	years or less5	Experience / Sample
61	34	19	8	Total
%100	%55.7	%31.1	%13.1	Percentage

The table shows (2) years of experience for the study sample, where 13.1% have served 5 years less, and 31.1% have served between 5 years and 15 years, while 55.7% have served more than 15 years and represent the highest percentage. From the analysis of the characteristics of the sample of the study it is clear that the majority of the members of the sample are highly qualified and highly experienced, note that the specialisation of the sample members is accountable, and this supports and enhances confidence in the information collected from the questionnaire.

Measuring the strength of the two variables of the study:

1. Variable power of cost accounting (independent variable)

Table (3) Iterations, percentages, computational circles, and standard deviations of the cost accounting variable

No.	Paragraph	Scale	Highly agree	Agree	Somehow Agree	Disagree	Highly agree	Arithmetic medium	Standard deviation	Result
1	Accounting for material flow costs measures and determines the cost of material and energy flows involved in production processes	Iteration	25	33	3	0	0	4.36	0.578	Highly agree
		Percentage	%41	%54.10		0	0			
2	Accounting for the cost of the flow of material enables the economic unit to obtain information on the size of the lost and flawed in the production process	Iteration	21	34	3	3	0	4.2	0.749	Highly agree
		Percentage	%34.40	%55.70	%4.90	%4.90	0			
3	Accounting for the cost of the flow of materials enables the economic unit to track the flow of materials from the stage of purchasing raw materials from processors through production processes to their outputs.	Iteration	29	26	5	1	0	4.36	0.708	Highly agree
		Percentage	%47.50	%42.60	%8.20	%1.60	0			
4	Accounting for		13	38	10	0	0			Agree

	the costs of material flow lies in improving the performance of the economic unit (environmental and economic) through accurate tracking of materials and energy in the production process.		%21.30	%62.30	%16.40	0	0	4.05	0.617	
5	Material flow cost accounting provides the same economic unit information on the volume of healthy (positive) products and defective (negative) products accurately by obtaining information on the flow of materials in the production process.	Iteration	14	38	7	1	1	4.03	0.752	Agree
		Percentage	%23	%62.30	%11.50	%1.60	%1.60			
6	Accounting for the cost of material flow allocates an item for material losses, which contributes to a more clear account of the cause of these losses.	Iteration	21	31	6	3	0	4.15	0.792	Agree
		Percentage	%34.40	%50.80	%9.80	%4.90	0			
7	Material flow cost accounting achieves the goal of material control through overall balance by equalizing the amount of inputs with outputs	Iteration	15	36	9	0	1	4.5	0.74	Highly agree
		Percentage	%24.60	%59	%14.80	0	%1.60			
8	Material and energy flow tracking facilitates the measurement of the volume of waste left over from environmentally harmful	Iteration	13	32	14	2	0	3.92	0.759	Agree
		Percentage	%21.30	%52.50	%23	%3.30	0			

	materials by providing more accurate information on the flow of materials									
9	Concern for the environment in the economic unit in order to reduce environmental risks to the environment (internal and external)	Iteration	21	27	9	3	1	4.05	0.921	Agree
		Percentage	%34.40	%44.30	%14.80	%4.90	%1.60			
10	Accounting for the cost of material flow coordinates and communicates between different departments.	Iteration	12	34	10	4	1	3.85	0.872	Agree
		Percentage	%19.70	%55.70	%16.40	%6.60	%1.60			
11	Accounting for the costs of material flow identifying waste problems and identifying ways to reduce them	Iteration	14	34	12	1	0	4	0.707	Agree
		Percentage	%23	%55.70	%19.70	%1.60	0			
	Total	Iteration	198	363	88	18	4	4.18	0.58	Agree
		Percentage	%29.50	%54	%13	%3	%0.50			

Table (3) shows that the independent variable accounting for material flow costs recorded a mathematical average (4.18), higher than the hypothetical average (3) and standard deviation (0.58), and the answers (fully agreed and agreed) amounted to 83.5 percent. This is the highest compared to the respondents' responses about (i agree and not fully agreed) which came in (3.5%) Their answers were "fairly agreed", which came in at 13 percent, meaning that the respondents' responses were in the positive direction.

The seventh paragraph (accounting for the cost of the flow of materials works to achieve the goal of control of materials through the overall balance by

Equalizing the amount of inputs with outputs) higher in the middle of my account (4.5) with a standard deviation (0.740) and the ratio of agreement (83.6%) and the percentage of total non-agreement (1.6%). A fairly agreed percentage (14.8%)

The tenth paragraph (accounting for the costs of the flow of materials works on coordination and communication between the occupied departments) achieved the lowest in the middle of my account (3.85%) with a standard deviation (0.872%), and the rate of agreement (75.4%) and the rate of disagreement and total non-agreement (8.2%). The remaining paragraphs were among the values of the previous two paragraphs.

2- Cost reduction power (dependent variable):

Table (4) Repetitive distributions, percentages, computational circles and standard deviations of the cost reduction variable

No.	Paragraph	Scale	Highly agree	Agree	Somehow agree	Disagree	Highly disagree	Arithmetic medium	Standard deviation	Result
1	The Economic Unit is able to prepare more transparent reports on costs and waste in production and to provide them to decision makers, enabling them to undertake many activities that contribute to reducing waste and thus reduce costs.	Iteration	23	34	3	1	0	4.295	0.641	Highly agreed
		Percentage	%37.7	%55.8	%4.9	%1.6	0			
2	Material flow cost accounting helps the economic unit reduce the cost of lost material by providing information on the flow of materials and energy in the production process.	Iteration	16	39	5	1	0	4.147	0.628	Agree
		Percentage	%26.2	%63.9	%8.2	%1.6	0			
3	Material flow costs can be accurately calculated for production processes and waste costs reduced	Iteration	18	30	8	4	1	3.983	0.921	Agree
		Percentage	%29.5	%49.2	%13.1	%6.6	%1.6			
4		Iteration	17	38	6	0	0	4.180	0.591	Agree
		Percentage	%27.9	%62.3	%9.8	0	0			
5	Enables economic unity by managing the supply chain to reduce environmental impact and reduce social cost	Iteration	13	34	14	0	0	3.983	0.695	Agree
		Percentage	%21.3	%55.7	%23					
6	The economic unit is able to determine the cost of treating waste caused by machine failure	Iteration	14	32	15	0	0	3.786	0.858	Agree
		Percentage	%23	%52.5	%24.5	0	0			

7	Enables the economic unit to undertake improvement measures by identifying and tracking the amount of waste and emission of material flows and reducing them thereby reducing	Iteration	12	28	18	2	1	4.049	0.693	Agree
		Percentage	%19.7	%45.9	%29.5	%3.3	%1.6			
8	The economic unit is able to identify lost materials or data gaps and then identify loss points, make the required improvements, and exclude materials that do not add any financial or environmental .value	Iteration	15	35	10	1	0	4	0.795	Agree
		Percentage	%24.6	%57.4	%16.4	%1.6	0			
9	Material flow costs accounting provides information to avoid the economic unit, product defects, and that produces flawless and low-cost .products	Iteration	15	35	7	4	0	3.836	0.879	Agree
		Percentage	%24.6	%57.4	%11.5	%6.6	0			
10	Determines environmental costs more accurately through information on material flow	Iteration	11	35	11	2	2	3.836	0.879	Agree
		Percentage	%18	%57.4	%18	%3.3	%3.3			
11	Material flow cost accounting measures environmental costs more accurately	Iteration	14	29	14	4	0	3.868	0.879	Agree
		Percentage	%23	%47.5	%23	%6.6	0			
	Total	Iteration	168	369	111	19	4	4.08	0.56	Agree
		Percentage	%25	%55	%16.5	%3	0,5			

Table (4) shows that the variable dependent cost reduction recorded a mathematical average (4.08), higher than the hypothetical average (3) and standard deviation (0.56) and the answers (fully agreed and agreed) amounted to (80%) This is the highest compared to the respondents' responses about (i agree and not fully agreed) which came in (3.5%) Their answers were (somewhat agreed) which came from 16.5%, i.e. the respondents' answers were in the positive direction.

The initial paragraph (enabling the economic unit to prepare more transparent reports on costs and waste in production and submit them to decision makers, which enables them to carry out many activities that contribute to reducing waste and thus reduce costs) achieved higher in the middle of my account (4.295) with standard deviation (0.641) and the ratio of agreement (93.5%) and non-agreement (1.6%). The percentage is fairly agreed (4.9%).

The paragraph (costs enables the economic unit to determine the cost of processing waste resulting from machine failure,) achieved the lowest in the middle of my account (3.786%) with a standard deviation (0.858%) and the ratio of agreement (75.5%) and the non-agreement ratio (0%). The remaining paragraphs were among the values of the previous two paragraphs.

Test research hypotheses:

The first hypothesis: there is a statistically significant correlation between the application of material flow accounting and cost reduction.

The first hypothesis was tested using the Pearson Correlation Coefficient to determine the nature and direction of the correlation between the independent variable, the material flow cost accounting and the dependent variable, cost reduction as described in the table:

Table (5) the correlation between material flow accounting and cost reduction

Independent variable / Dependent variable	Accounting for material flow costs	
	R	Sig
Cost reduction	0.401	0.002

Table (5) indicates that there is a correlation between accounting for material flow costs and cost reduction, because the value of the correlation coefficient was (0.401) where it was within the specified range of the correlation factor. < R ≥1), also indicates that the correlation between the two variables is statistically significant because the level of indication is the value of Sig.

It is 0.002, which is lower (a<0.05), as the correlation is statistically d if the level of indication (a<0.05), thus proving the first hypothesis.

Second hypothesis: there is a statistically significant effect relationship to accounting for the costs of material flow in reducing costs.

The R^2 correlation coefficient box was used to determine the contrast ratio in the dependent variable through which the independent variable can be predicted, and contrast analysis was used to test the correlation of regression, so if the level of indication is the value of Sig

(a<00.05) the slope is moral and therefore there is a relationship between the independent variable and the dependent variable and the case shown in Table 6:

Table (6)

Independent variable / Dependent variable	Accounting for material flow costs			
	R Square	Adjusted R Square	Sig	F. value
Cost reduction	0.16	0.143	0.002	11.031

Table (6) shows the moral effect of accounting for material flow costs in reducing costs, with the link coefficient (selection coefficient) (0.16) and this means that (16%) One of the differences explained

(variation) in cost reduction is the application of material flow cost accounting and the rest due to other factors not included in the regression model, where there are other techniques to reduce costs, including the current of value and the reengineering of operations, but the aim of this research is to measure the impact of accounting for material flow costs in reducing costs. The table also shows that the value of F calculated (11.031) is greater than the value of the P-5 () and the level of indication of the value of Sig was (0.002) and is lower (0.05) i.e. the decline is moral and statistically dal, since the effect is moral if the value of Sig is less than (0.05) and this indicates a statistical effect of accounting for the costs of the flow of materials in the second cost reduction and thus the hypothesis was proved.

Fourth topic:

1- Accounting for the cost of material flow is one of the environmental management accounting tools that reduce environmentally harmful residues and has an ISO standard.

2- Accounting for the costs of the flow of materials is an important tool for managing the flow of materials within the economic unit as it sells accurately to material and energy flows by reducing damaged and defecting.

3- It is a source of economic and environmental information that contributes to supporting the decisions of managers, the most important of which is reducing waste, defects and harmful residues and thus reducing the cost of the product.

4- The possibility of allocating the costs of the internal environment by relying on the information you provide more accurately.

5- The research sample opinion agreement shows that there is a correlation between the application of material flow cost accounting and cost reduction, and there is a moral effect of applying material flow cost accounting to reduce costs.

Recommendations

1- The need to apply accounting for the cost of the flow of materials in economic units to take advantage of the information it provides

Use of information on raw materials in order to reduce waste and environmentally damaging missions.

2- The need to apply the accounting of the flow of materials because of its importance in providing information by tracking the materials involved in the production process and measuring their outputs and identifying the final products and emissions and residues and thus reduce their costs and improve

The production process and reduce their environmental effects that lead to reduce the cost of the product.

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