

Activity-Based Costing System and its Role in Decisions Making in Iraqi industrial companies: A Field Study

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Abstract

The aim of this study is to examine the relationship between the Activity Based Costing (ABC) and the Decisions Making in Iraqi Industrial Companies. In order to conduct the study, a questionnaire was designed and addressed to Financial Managers, Cost managers, Cost Accountants, Financial Accountants, and Auditors in Iraqi industrial companies. Five-point likert scales were used for measurement and one-sample t-test is applied for testing the hypothesis of the study, one of the most important results of the study that the (ABC) information is an excellent source that underpins strategic and operational decisions.

Keywords: Activity Based Costing system, Cost driver, Rational Decision Making.

نظام التكاليف على اساس الانشطة ودوره في اتخاذ القرارات في الشركات الصناعية العراقية دراسة ميدانية

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الملخص

الهدف من هذه الدراسة هو دراسة العلاقة بين محاسبة تكاليف الانشطة (ABC) واتخاذ القرارات في الشركات الصناعية العراقية . ومن أجل إجراء هذه الدراسة، تم تصميم استبانة وجهت إلى مدراء المالية، مدراء التكلفة ، محاسبي التكلفة ، المحاسبين الماليين، ومراجعي الحسابات في الشركات الصناعية العراقية . وقد استخدم مقياس ليكرت الخماسي لقياس استجابة الباحثين واستخدم اختبار T لمتوسط عينة واحدة لاختبار فرضية الدراسة. وأحد أهم نتائج الدراسة هي أن معلومات (ABC) تعتبر مصدراً ممتازاً لدعم القرارات الإستراتيجية والتشغيلية.

الكلمات المفتاحية: نظام التكاليف على اساس الانشطة، مسببات التكلفة، اتخاذ القرارات الرشيدة .

1. Introduction

In the past, the vast majority of companies used direct labour hours as the only cost driver for applying costs to products. But direct labour hours are not a very good measure of the cause of costs in modern, highly automated companies.

Therefore, many companies are begun to use machine-hours as their cost - allocation base. However, some managers in modern manufacturing firms and automated service companies believe it is inappropriate to allocate all costs based on measures of volume. Using direct labour hours or cost - or even machine hours as the only cost driver seldom meets the cause/effect criterion desired in cost allocation. If many costs are caused by non-volume-based cost drivers, this can make indirect costs allocation inaccurate.

But if the amount of overhead is insignificant part of the cost of production, the consideration of overhead may not be so important. However, companies that maintain advanced technology production would incur costs of overhead and form a high large percentage of total production costs .Today, with the development of advanced technologies in various fields and with increasing complexity and diversity of activities, understanding these changes and to assessing their effects on costs of production units would be very important. Obviously, the knowledge of the activities and measuring their effect on production unit costs would require designing a suitable costing system.

Therefore, Organizations have been tried to change and adapt their business environment. Various management accounting techniques have been introduced in order to enhance this adaptation in fundamental areas of the organization. As an alternative costing system to traditional volume-based costing, Activity-Based Costing (ABC) has been one of these initiatives. Activity-based costing is an accounting approach for determining accurate costs especially the overhead costs (Iman Azadvar et al.,:2012:1391).

Activity-based costing (ABC) systems first accumulate overhead costs for each of the activities of an organization, and then assign the costs of activities to the products, services, or other cost objects that caused that activity. Accordingly, the ABC system focuses its attention on indirect costs. The aim is to define the most appropriate way for indirect costs allocation to cost objects.

The interest of manufacturer's in the ABC system grown significantly under the rapid growth of some markets especially in the manufacturing area, the increasingly growing indirect costs under the use of automated systems and the need for more accurate cost information to



better manage the business and gain competitive advantages. Moreover, the ABC approach is broadly applicable across the spectrum of company functions and not just in the factory (Nitin Kumar & Dalgobind Mahto: 2013:11).

In this paper, researcher wanted to emphasize that ABC method should be used for providing information in a decision making process and not only for cost measurement. This is especially important in decision related to pricing, resource management and activities.

2. Study problem

Traditional cost accounting, which mainly uses one single cost driver such as direct labor or output volume to allocate the overhead costs, systematically distorts product costs in modern manufacturing environments in which overhead costs are a significant portion of product costs. In correct product cost information can lead to weak decisions (Wang, Du, Lei and Lin, 2010). However the vast majority of Iraqi industrial companies use traditional cost accounting to allocate the overhead costs.

The costing methodology known as ABC yields cost information that may be significantly different than what is provided when the traditional absorption cost method is used. Perhaps now is the time for the companies' management to consider adopting ABC in making rational management decisions and it can be asked the following question:

Does the (ABC) System provide relevance information that helps in rationale decision making ?

3. Study Objective

The aim of this study is to examine the relationship between the Activity Based Costing (ABC) and the Decision Making in Iraqi Industrial Companies.

4. Hypothesis Study

The Activity Based Costing System does not provide relevance information that helps in rationale decision making.

5. Methodology Study

In order to achieve the objective of the study, the study relied on two approaches, namely:

1. The descriptive approach is concerned with the theoretical side, through reference to books, research.
2. The analytical approach is concerned with the field side, through a questionnaire designed to gather data on the study population.

6. Literature Review

There are many studies that have addressed the issue of the application (A.B.C.) system, as the following:

Jayanti Aggarwal, Harish Kumar study 2014, entitled “Applications and Relevance of Activity Based Costing”.

The general objective of this study is to determine how Activity based costing is applied in Indian companies, and to determine the cost-benefit analysis of ABC. For the purpose of the study, the sample size consisted of 50 companies in the primary data which belonged to the various sector in the Indian economy. The study found that Indian companies have started employing ABC costing systems. However, some sectors still seem averse to adopting ABC. Basically, In India the primary use of ABC is for improving organization performance and management. However, India Inc continues to experiment with the application of ABC. As such the future use of ABC will be varied from customer analysis and market performance. Contrary to the traditional technique, the successful installation and implementation of ABC in the global conglomerate requires high initial investment and expenditure. Thus, the companies have to chuck off a large share of their revenue for recovery of the installation cost. But relying only on this, the benefit could not be overlooked. ABC has been successful in escalating the profits and creating an avenue of choices for the company to select the customer base so that profit contribution per customer is increased. Compounding this effect, the performances of the companies improve as time passes by.

Ruhanita Maelah and Daing Nasir Ibrahim study 2007, entitled “Factors Influencing Activity Based Costing (ABC) Adoption in Manufacturing Industry”.

The general objective of this study is to increase understanding on ABC adoption in manufacturing organizations in Malaysia, and the factors influencing its adoption. Mail survey questionnaires were distributed to manufacturing organizations throughout the country using purposive judgment sampling. The questionnaires were directed to the accountants or heads of accounts of selected manufacturing organizations. The study found that ABC adoption in Malaysia is at infancy stage, with 36% adoption rate. The factors that influence ABC adoption are decision usefulness of accounting information, organization support, and internal measures of performance.



Azzouz Elhamma & Zhang Yifei study 2013, entitled “The Relationship Between Activity Based Costing, Business Strategy And Performance In Moroccan Enterprises”.

In this article highlights the results of an empirical Study on the relationship between ABC, business strategy and organizational performance in 62 Moroccan enterprises. 12.9% of the responding companies reported using the ABC method. The results using logistic regression indicate that the business strategy has not a significant influence on the use of this new method of the management accounting. Also, we found that the management accounting system based on ABC method results in a better performance for enterprises that have adopted it. Finally, we demonstrated that the both types of firms (prospectors and defenders) have an interest to adopt the ABC method.

Boris Popesko study 2010, entitled “Utilization of Activity-Based Costing System in Manufacturing Industries – Methodology, Benefits and Limitations”.

The subject matter of the paper is the detailed consequences of applying an Activity-Based Costing system and its structure within the manufacturing industry. It defines steps within ABC application, as well as analyzing the input and output information and data required for effective utilization of the system.

The relationship between cost allocation methodology and application procedures is also determined within this work, thereby describing all the features necessary for effective ABC implementation. The results published in the paper come from research projects over a 3-year timeframe focused on the methodology of implementing an Activity-Based Costing system and its resultant influence on the efficiency of manufacturing businesses. The author has conducted a number of ABC system applications in manufacturing industries in order to gather the data and information necessary to define application and allocation principles. The paper reveals two final outcomes. The first of these determines the methodology of building an ABC system, looking at the essential steps necessary to construct a system in an organization. The other describes cost allocation methodology, which is performed within separate stages of implementation. The major part of paper is dedicated to explaining the methodological steps within ABC implantation. An effectively implemented Activity-Based Costing system then provides accurate product costing and proves a useful aid for managing business operations.

Omar Mohammad Hadeb study 2009, entitled “The ABC System in the Industrial Companies in Jordan, and its Relationship to Financial Performance”.

This study aims at contributing to a better understanding of Activity-Based Costing (ABC) implementation systems and determining the extent of ABC implementation by the Jordanian industrial sector and identifying the factors that facilitate and motivate the decision to implement it. Moreover, it aims at determining the problems associated with ABC implementation and assess the degree of success of ABC implementation based on suggested model. It also aims at showing the relation between implementing ABC the financial performance improvement. The findings indicate that ABC implementation is implemented started to be implemented by (16) industrial companies, all of which are public companies. Only five of these companies decided to implement the system. Others were within implementation stages (starting from planning and ending up with establishing the system).

Another conclusion is that there is a positive relation between implementing ABC and the improvement in the financial performance in two out of five companies, i.e. (40%) of study sample. The average financial indicators in these two companies increased after implementation; but financial performance didn't show improvement in the three other companies, i.e. (60%) of study sample. Average financial performance indicators dropped to what has been expected.

The study recommends that there is a necessity for making drastic changes by companies technologically and organizationally to implement modern cost accounting systems due to their importance in the current stage, and to use the ABC system because it provides management with information necessary for rational decision-making. Moreover, managements are advised to eliminate all obstacles that hinder ABC implementation.

6.1. What Distinguishes This Study?

Activity-Based Costing system was one of the solutions that its right implementation and performance had many advantage for the users. The previous studies mainly focused on the applicability of the (ABC) system and the factors influencing its adoption, and most of the results of the studies show that the system can be applied, but the current study focused on the role of Activity based costing system in Decision making, in order to help managers to make the right decisions regarding product mix and competitive strategies in Iraqi industrial companies.



7. The Theoretical Framework: Activity Based Costing (ABC) System

7.1. The Concept of Activity Based Costing (ABC) System?

Much has been written about the ABC system. Several definitions have been given for the ABC system. The examples are as follows:

The ABC system was designed in order to correct the deficiencies of traditional costing systems. The initial purpose of the ABC system is to provide a fair and accurate cost allocation and therefore product (Ivana Dražić Lutlisky ,& Martina Dragija:2012:34).

Park and Simpson, (2008) stated that the central idea of ABC is to classify and separate activity costs from an accounting system and allocate the costs to products by measuring the cost drivers of the costs. The bottom line is that all indirect costs accumulated in an accounting system should be appropriately allocated to products consuming those indirect costs to prevent cost distortion.

According to Kavitha Jayakumar & B.Valarmathi (2016:2277) "Activity-based Costing (ABC) System is a powerful tool for the an organization to have an accurate and effective cost for its product avoiding cost distortion that may lead sustainable development and growth which is mandatory to be competitive in the era of globalization and complex business environment" .

Furthermore ,Dizgah R. ,Hossein G. & Farshad (2012:95) stressed that ABC methodology provides a foundation for cost tracing, analysis , and management, which entails making quality and accurate operative and strategic decisions as a basis for the long- term orientation of a company. ABC is also complementary to the widely accepted technique of strategic planning and strategy implementation known as Balanced Scorecard (BSC).

According to Gregory Wegmann (2010) the ABC logic remains a good way to improve management accounting systems to drive strategic decisions.

Horengern et al.(2006, p.80) argued that ABC system is one the modern costing system of production and services that meet the needs of the costs correct compute of production, improving the production process, deletion of activities of the without added-value, recognition of cost drivers, control improvement, reduction of the cost production, operational programming and determining the commercial ways for economical entities.

Balakrishnan et al. (2013) described ABC as: ABC system evaluates the responsibilities of individuals towards using methods of the available resources and assists the management team in directing the method of control to achieve the target of sufficiency in performance.

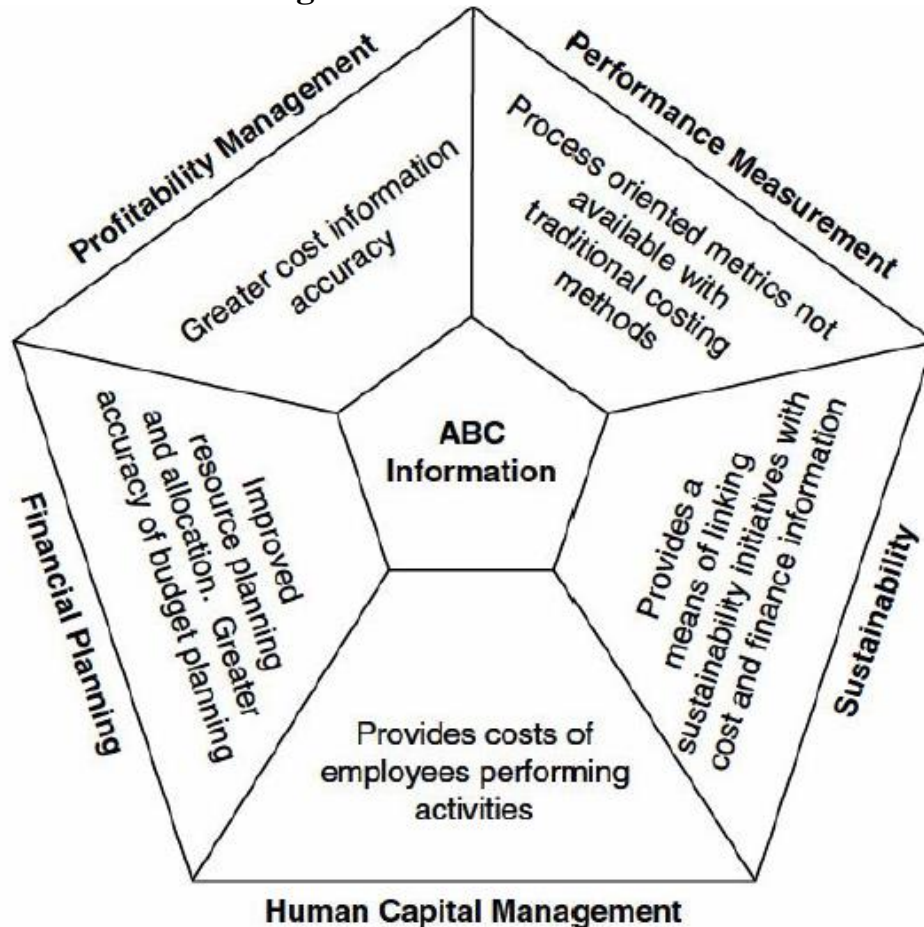
From the various definitions presented above, it can be concluded that ABC system was designed in order to improve resource allocation and for better decision-making.

7.2. Benefits of ABC

When an organization implements ABC there are many important benefits, The examples are as follows:

1. ABC system provides more accurate product cost information (Abu Mansor, Tayles & Pike, 2012). This is especially important in decision related to programs, resource management and activities, which should be supported (Granof, Platt & Vaysman, 2000). Besides accurate cost information, managers can get non-financial information in order to improve the decision making process: better product design decisions, better customer support decisions and fostering value enhancement projects (Lotfi&Mansourabad, 2012).
2. ABC implementation helps to increase the managerial efficiencies and effectiveness, and increases firms' revenue (Monir Zaman: 2009:206).
3. Increases knowledge about the production and distribution cost structure for different products while allowing managers to decide wisely about pricing and sales composition (Horngren et al., 2006).
4. The identification of connections between resources, activities and products makes it possible to better manage the cost of a product and to act on the activity cost causes (Bouquin, 2011).
5. Accurately predict costs, profits, resource requirements associated with changes in production volume, organizational structure and cost of resources. (Nikhil & Alok: 2012: 176).
6. Identify the most profitable customers, products.

In a nutshell, the typical benefits of activity based costing may be described as follows: (a) ABC system provides accurate cost information for decision making and planning (Homburg:2004), (b) increases awareness of cause and effect relationships, (c) promotes performance improvement, (d) identifies non-value-added activities, (e) motivates cost reduction, (f) reduces arbitrariness in cost measurement, (g) optimizes use of constrained resources (Eldenburtg & Wolcott: 2005). Figure below reflects the benefits of ABC.

Figure 1: Benefits of ABC

Source: Lotfi & Mansourabad , 2012.

8. The practical frame of the study

8.1. The Population of the Study

The study population consisted of workers in the Iraqi industrial companies, 15 firms were selected randomly and the respondents were asked to answer questions. The respondents for this study were the finance directors, chief financial officers, cost and management accountants, and other senior executives.

8.2. Test the stability of the tool study

The stability of the questionnaire has been verified by applying the reliability coefficient according to alpha cronbach. As it is indicated in the following table, the reliability coefficient amounts to 88.5% which is a high percentage. For this reason we can accept the questionnaire as a suitable for the scientific research.

Table (1) the value of Cronbach's alpha

Cronbach's Alpha	N. of Items
.885	14

8.3. Sample Characteristics

The results showed with respect to the levels of specialized that 57.9% of respondents in the field of accounting, 22.8% in the field of Finance and Banking Science, and 10.53% in the field of Business Administration , which means that the respondents have a clear idea on the subject of the study. With regard to scientific qualification results show that 66.67% of bachelor's and 17.54% of master campaign, this gives credibility in the results. With regard to functional level results show that 38.59% of the sample of financial managers and cost managers and 38.6% of Cost Accountants and 12.28% of Auditors and this gives credibility in the results. With regard to the level of expertise of the sample, we find that 33.33% of the samples are the owners of expertise that fall within the category (10-15 years), and 26.32% of the samples are the owners of expertise that fall within the category (5-10 years). As shown in table (2).

In general, these statistics about the respondents indicate that they are highly qualified. Their qualifications make their responses more accurate and objective; consequently, the results of this study will be more reliable.

Table (2) the demographic characteristics of the study sample

Title	Frequency	Percentages %
Specialization:		
Accounting	33	57.9
Finance and Banking Science	13	22.8
Business Administration	6	10.53
Other	5	8.77
Total	57	100%
Qualification:		
Diploma	6	10.53
Bachelor	38	66.67
Master	10	17.54
Ph.D	1	1.75
Other	2	3.5
Total	57	100%
Job:		
Financial manager	10	17.54
Cost manager	12	21.05
Cost Accountant	22	38.60
Financial Accountant	6	10.53



Auditor	7	12.28
Total	57	100%
Years of Experience:		
Less than 5 years	9	15.79
From 5 – 10 years	15	26.32
From 10 – 15 years	19	33.33
More than 15 years	14	24.56
Total	57	100%

8.4. Data Collection and Analysis

The aim of the questionnaire is to show how ABC can be help firms make better decisions based on more accurate costing information in the Iraqi industrial companies. This process took place from September to October 2016. Fourteen items were arranged on a five point Likert type scale expressed as 1= Strongly Agree, 2 = Agree, 3 = Neutral, 4 = Disagree, and 5 = Strongly Disagree. 60 questionnaires were distributed and 57 questionnaires returned, thereby giving a response rate of 95%. A phone call and personal interviews were made afterwards to improve the response rate. For the sake of discussion and interpretation of results of the study, the researchers applied on the following equation to compute the range:

Range = (the highest average value- the lowest average value) / (number of levels): $(5-1) / (3) = 1.33$

Therefore the results will be as the following:

1. Results between (1 - 2.33) represent a week average response rate.
2. Results between (2.34 - 3.67) represent a medium average response rate.
3. Results between (3.68 - 5) would be a high average response

Data are analyzed through the Statistical Package for Social Sciences (SPSS) program. We calculate the descriptive statistics. The descriptive statistics give an overview of the collected data and they are reported in table (3).

Table (3) showing the views of the sample study about the (A.B.C.) system

No	Paragraph	Mean	St. Dev.	Rank	Degree
1	ABC provides to the firms precise financial information related to the costs of activities and products and non-financial information related to those activities which lead to rationalizing the internal and external management decisions.	3.96	.50	7	high
2	ABC allows for a thorough and critical analysis of the entire activity and production processes. This analysis can result in process improvement, cost reduction, managerial performance, and better strategic decisions on pricing.	3.89	.48	8	high
3	ABC system provides more accurate and timely cost data needed to make appropriate strategic decisions about product mix, sourcing, pricing, process improvement, and evaluation of business process performance.	4.10	.67	5	high
4	By finding an adequate relation between overhead costs and cost objects, identifying and tracing cost drivers and output measures of activities, management may decide to transfer certain processes and activities to another company.	3.33	.59	13	medium
5	ABC Highlights the actual relationship between the cost pool and the cost driver this makes indirect costs allocation accurate and helps to diagnose problem areas and suggest appropriate corrective actions.	3.85	.79	9	high
6	ABC system provides more accurate and real information about the usages of the firms and about the activities which drive the costs. This matter leads to increase the importance of the accountants in the fields of planning, control and decisions-making.	4.27	.59	1	high
7	ABC system generates more detailed and accurate accounting information needed to make various decisions.	3.55	.81	12	medium
8	Identify activities and assign cost of resources products according to the actual consumption of each product from recourses helps management arrive at the true cost of a product to avoid under or over costing.	3.83	.79	10	high
9	The usage of multiple allocation bases to assign indirect costs to cost objects can provide a more accurate and objective profitability evaluation, thus can lead to better decisions.	4	.55	6	high
10	ABC analysis illuminates exactly what activities are associated with that part of the business and how those activities are linked to the generation of revenues and the consumption of resources. By high-lighting those relationships, ABC helps managers understand precisely where to take decisions that will drive profits.	4.11	.65	4	high
11	ABC system provides more accurate cost data needed to improvement of the decision making process in relation to preservation or discontinuance of activities.	4.14	.49	2	high
12	ABC system separate product-driven costs from customer-driven costs. Thus, ABC helps managers to determine the loading between product-driven and customer-driven costs. This analysis will allow management to discontinue supporting unprofitable products, customers or markets.	3.70	.48	11	high
13	The analysis of expense categories and cost help management set their improvement priorities.	4.13	.70	3	high
14	ABC system provides more accurate cost data needed to improvement of outsourcing decision procedures.	3	.73	14	medium
	Overall Average	3.84	.33		High degree



Testing the results in table (3) indicates that Hypothesis can be rejected in a high degree, where all the weighted arithmetic means indicate to that, (ranged between 3 and 4.27), and the general mean (3.84). Also that the standard deviations refer to the absence of spacing or dispersion in responses to the questionnaire. This indicates that the (ABC) system has a role in provide relevance information that helps in rationale decision making.

8.5. Testing the Hypotheses

This Hypothesis states: The Activity Based Costing System does not provides relevance information that helps in rationale decision making. For this hypothesis we use one sample t-test to analyze and test the study hypothesis, the following table (4) shows the results of statistical analysis to test this hypothesis.

Table (4) One sample t-test

Mean	St. Division	Mean difference	T -test	Confidence level	Result
3.8471	.3343	.8471	19.129	.000	rejected

Table (4) shows that the mean difference (0.8471) is significant where t-value (19.129) and (sig = 0.000) less than 0.05, so we reject null hypothesis and accept that: The Activity Based Costing System provides relevance information that helps in rationale decision making.

9. Conclusions and Recommendations

9.1 Conclusions

1. The Activity Based Costing aim is to define the most appropriate way for indirect cost allocation to cost objects in order to provide a fair and accurate cost.
2. Through a survey, we found that the ABC has more advantages and visibility for the decision-making process.
3. ABC information is an excellent source that underpins strategic and operational decisions including, for example, the following.
 - Preservation or discontinuance of activities.
 - Improvement of the decision making process in relation to product costs.
 - Adjust pricing policy as to apply to increased product mix complexity.
 - Change the mix of products produced.
 - Continuous improvement of products and processes.

- Improvement efficient resource consumption and evaluation of process performance.
- Pricing.
- Cost reduction.
- Planning and control.
- Transfer certain processes and activities to another company.
- Discontinue supporting unprofitable products, customers or markets.
- Product design.
- Purchasing and marketing.
- Making decisions related to profitability.

9.2. Recommendations

1. The need to apply the (ABC) system because of its from the role in determining true costs and provide relevance information that helps in rationale decision making.
2. The need to apply the (ABC) system because it can play a significant role in a firm's success.
3. The necessity of applying the ABC system because there are different products with different specifications and production sizes. This leads to an increase in the indirect cost percentage. As a result, the question of having an accurate allocation of this cost becomes more important and essential in guiding the decisions of the management.
4. Applying the ABC system is a must to keep up with using advanced manufacturing systems.
5. The need to train workers in Iraqi industrial companies to apply the procedures of the ABC system.



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