Abstract:
This study aims at pointing out the importance of applying the A.B.C system in the industrial Jordanian establishments in the presence of the changes in the environment of modern manufacturing, and the use of modern technology in production, under the severe competition and the increasing need of management for qualitative information which helps in making strategic decisions in meeting the challenges of competition. Questionnaires have been used by the researcher to collect information about the study community which is consisted of a number of industrial Jordanian establishments. Thirty eight questionnaires have been distributed. Thirty five questionnaires have been returned. Only one of the returned questionnaires could not be analyzed. A set of statistical methods have been used by the researcher to analyze the collected data through these questionnaires. The study has come out with many important results. The most important one is that which says that applying the A.B.C system provides the data which helps to:

- Accurately measure production cost and lowering it.
- Improve and develop the production quality.
- Increase the operational efficiency.
- Enhance performance and vary productions.
- Get the best allocation of the financial and human resources and distributing them according to activities.
- Effectively and efficiently price products and determining which of these is the most profitable.
- To improve the relation with customers.
- To get suitable returns, which means trying to keep the ability to compete and still being able to develop and continue.

**Keywords:** Activity Based Costing (ABC), performance, competitiveness, Profitability, Economic Value Added (EVA), integrated cost system, Cost control.
Introduction:
Due to the development, the wide economical exchange, the scientific and technological advance and the severe competition among firms with huge and multi-products, the failure of traditional cost systems becomes very clear, as far as the adequacy of these systems with the development which has taken place in the manufacturing environment is concerned. The use of modern Production systems reflects accurately the reality of the product cost. For that, the Activity Based Costing system has its special importance in keeping up with the technological and scientific advance and to meet management needs for data and direct analytical accurate information relating to measuring, controlling and managing cost. As a result, introducing the best of products with the least cost and getting the highest return will support the competitive position of business organizations and help in their continuity and development.

The importance of the study:
The importance of the study emerges from the importance of using activity based costing system in the industrial sector. This is what helps in enhancing the operational performance of these firms, the continuous developing of operational process, the designing and variety of products as well as in taking care of the customer. The activity based costing system is considered a scientific tool and an important integrated approach which meet most of the demands of modern management and is in accordance with the tendencies of industrial sector, especially in keeping with the business environment. To keep up with the business environment, it is necessary to use modern techniques and advanced technology in manufacturing and to apply approved scientific standards to measure the performance of these firms. This will help in controlling and developing the operational process, in improving control, in making strategic policies, and in making decisions which enable the management to play its role effectively. Under the severe competition among firms, this ensures introducing products of high quality and lowest price as quickly as possible.
The objectives of the study:
The study aims at the following:

1. Indicating the importance of activity based costing system in enhancing the performance of firms. It also helps in analyzing the flow of processes within these firms and facing the sudden changes in the manufacturing environment. This is because the cost system is inseparable from the performance structure of a firm.

2. Showing the correspondence between getting a distinguished standard of accuracy in calculating the cost on one hand and the merits which are made available by this system – especially the question of allocating the indirect cost on the products- on the other hand. More than that, it will help in choosing the suitable cost driver which points out the strong relation between the change in the activity cost and the change in cost driver level.

3. Pointing out the importance of using A.B.C system in: managing costs, lowering them and determining the products which are the most profitable and how to variegate their kinds as well as in maintaining quality of these products under the severe competition in order to get the best economic return. Which support the competitive position of a firm and its ability to continue and develop?

4. Presenting some recommendations which stimulate manufacturing companies to use the A.B.C system.

The problem of the study:
Due to the changes which have taken place within the manufacturing environment under the scientific and technological advance in production means, the changes in preparing and dealing with information, the transition of goods and products internationally, all these factors increased the severe of competition among the industrial businesses organizations. These same factors increased the awareness of the management to the necessity to create a cost accounting system to provide cost data - which is in accordance with the nature and structure of the modern industrial environment- available. This information will help in facing the severe competition by introducing products of high quality and low cost. As a result of these changes and challenges, there is a necessity for studying and analyzing the conditions of the manufacturing companies. This will be done in order to find the ways which ensure the quality and adequate use of resources, lower the cost, and giving interest to the activities which add value to products. Adding value to products supports the competitive position of the establishment and gains customers’ satisfaction. It will also help in the continuity and development of these firms under severe competition conditions.

The problems can be summed up as follows:
1. Does the A.B.C system helps in getting an accurate cost data which enables the management to supervise and develop the operational processes as well as to measure and enhance performance in accordance with convenient modern standards?

2. Does the A.B.C system help in providing special data about cost to get an accurate measurement for production units? And consequently helps in guiding and directing planning and controlling processes, as well as in making decisions?

3. Does the A.B.C system help in providing data which enables to understand the nature of the relation between cost and profit? Does A.B.C support management’s efforts to lower the cost, to develop products and maintaining quality, and to determine which of these products are the most profitable in order to raise the competitive ability and to continue in development?

**The hypothesis of the study:**

1. The A.B.C system provides the data which helps in guiding the operational management decisions such as: improving productions, increasing operational effectiveness and efficiency, controlling, measuring and evaluating performance according to suitable modern standards.

2. The A.B.C system provides cost data which enables us to achieve a high level of accuracy while calculating cost and helps the management in planning, controlling and making decisions.

3. The A.B.C system provides the data which enables us to determine the most profitable products and to get the suitable return which support continuity, developing and competitive ability.
Previous studies:

1- Azzouz ELHAMMA, 2013
The Activity Based Costing (ABC) represents a new model in the Management accounting. In recent decades, it has been the subject of several research papers, especially in developed countries (USA, UK, France...). However, this type of works is still absent in the Arab Countries. In this context, 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.

2- Azzouz Elhamma, 2012
The Activity Based Costing (ABC) represents a new model in the management accounting. In recent decades, it has been the subject of several research papers, especially in developed countries (USA, UK, Australia, etc.). However, this type of works is still absent in developing countries like the Arab area for example. In this context, this article highlights the results of an empirical study on the relationship between firm size, ABC method and organizational performance in Morocco. The results based on a sample of 62 firms showed that 12.9% of the responding companies reported using the ABC method. The results using logistic regression indicate that the firm size influences significantly and positively the use of the ABC. 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 large enterprises have an interest to adopt this new method of the management accounting, but the SMEs are indifferent between adopting and not adopting this method.
3- **Haibo Hu, 2010**

The integrated product of Activity-Based Costing (ABC) and Economic Value Added (EVA) is the ABC & EVA system, i.e. the integrated cost system. Traditional ABC method gives priority to the interior activity chain of enterprise to implement the cost analysis, but ignores the capital cost, so the cost accounting is not complete. The ABC & EVA system brings the capital cost into the cost management, which could not only open out the real economic value created by the cost objects, but extend the pure cost computation of ABC to the performance evaluation. Based on the principle of the ABC & EVA system, the enterprise cost control strategies under the integrated cost system are proposed.

4- **Omar Mohammad Hadeb, 2009**

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. To realize the afore-mentioned objectives, a model was developed to measure the extent of implementing ABC in Jordanian industrial companies. The methodology used in this study is the comprehensive survey of all industrial companies in Jordan to data of ABC implementation was collected through personal interviews. Two statistical approaches were adopted: the descriptive statistical approach to show and describe the features of the study community; and the analytical statistical approach to perform the appropriate analysis of the nature of the study based on the type of the data to be analyzed and the objectives and hypotheses of the study. 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. This shows that there is no relation between implementing this system and improving
financial performance. 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.

5- Gregory Wegmann, 2009

This paper analyzes the management accounting applications, which try to improve the Activity-Based Costing (ABC) method. First, the paper describes them using the Strategic Management Accounting (SMA) stream. Then it presents the main features of these applications. Second, the paper examines in detail two of these features: the widening of the analysis perimeter and the relevant level of details to analyze the costs. Subsequently, it analyzes several proposals, such as Customer-Driven ABC, Inter organizational Cost Management (IOCM), Resource Consumption Accounting (RCA) and Time-Driven ABC (TDABC). Finally, it describes an experience observed in the IT supply European division of an international group. This group experiments, what we call an ‘Activity-Based Supply Chain Costing Tool’ to manage its inter organizational relations.
The practical frame of the study

1. Study sample and society:

To select the study assumption and verify their correctness, a questionnaire has been designed and its stability and validity for scientific research has been tested through stability tests. This questionnaire has been applied on the members included in the research, namely Jordanian accountants in industrial business organizations.

The questionnaire has been distributed to a sample of accountants in industrial business organizations.

Stability:

The stability of the questionnaire "the study Toole" 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 87.4% which is a high percentage. For this reason we can accept the questionnaire as a suitable Toole for the scientific research.

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cases Valid</td>
<td>34</td>
<td>100.0</td>
</tr>
<tr>
<td>Excluded</td>
<td>0</td>
<td>.0</td>
</tr>
<tr>
<td>Total</td>
<td>34</td>
<td>100.0</td>
</tr>
</tbody>
</table>

a. Listwise deletion based on all variables in the procedure.

Test of normal distribution of data:

The one-sample kolomogorov _ _ simirnov (K-S) test below shows that the sign values of the three axes are 0.789, 0.346, and 0.681 respectively. All these values are more than 5% which means that the data follows the normal distribution. For this reason the researcher will use special parametric devices for the data which follows the normal distribution to do needed tests necessary to verify the research assumption.

(The committee of authors and translators, Dar Al_Shoa'a, 2007.105).

One-Sample Kolmogorov-Smirnov Test
2. Data analysis and hypotheses verification
   a. Results of the questionnaire distribution.

   After designing, arbitrating and distributing the questionnaire on
   the research sample the following results have been achieved after
   distribution and sorting.

   The following table shows a number of questionnaires distributed
   on the research sample.

<table>
<thead>
<tr>
<th>Distributed questionnaires</th>
<th>Percentage %</th>
<th>Refunded questionnaires</th>
<th>Percentage %</th>
<th>Non_refunded</th>
<th>Percentage %</th>
<th>Questionnaire that can be analyzed</th>
<th>Percentage %</th>
<th>Questionnaires that can't be analyzed</th>
<th>Percentage %</th>
</tr>
</thead>
<tbody>
<tr>
<td>38</td>
<td>100</td>
<td>35</td>
<td>92.10</td>
<td>3</td>
<td>7.9</td>
<td>34</td>
<td>98.47</td>
<td>1</td>
<td>2.63</td>
</tr>
</tbody>
</table>

   From the previous table it can be noticed that the number of the
   analyzable questionnaire is 34 and the percentage of the refunded
   one is 92.10 which is a sufficient and acceptable percentage to
   analyze the statement.

   b. The results of the statically analysis and hypotheses test.

   To analyze data and test hypotheses the researcher has adapted the
   statically program SPSS.

   The researcher uses one sample T test (one _ sample) according the
   supposition which states that: the average of the items in each
   group exceeds the standard value _ neutrality _ of each of the
   research variables

   **Standard of acceptance or rejection:**

   The null hypothesis is accepted when the mathematical average is
   less than 3 of the standard value whether it is for all the variables of
   the hypothesis or for each one of them.
When significance level is at 0.05 the test is considered of statically significance (meaningful) but not over 0.05.

1. **Results of analyzing for the first hypothesis:**
   The A.B.C system provides the data which helps in guiding the operational management decisions such as: improving productions, increasing operational effectiveness and efficiency, controlling, measuring and evaluating performance according to suitable modern standards.
   The following table shows the results of the statistical analysis of the first hypothesis, the set of questions in the questionnaire concerning the mean symbolize these results. (Questions 1_11).

**One sample statistics:**

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>mean1</td>
<td>34</td>
<td>4.3075</td>
<td>0.23581</td>
<td>0.04044</td>
</tr>
</tbody>
</table>

**One-Sample Test**

<table>
<thead>
<tr>
<th></th>
<th>t</th>
<th>df</th>
<th>Sig. (2-tailed)</th>
<th>Mean Difference</th>
<th>95% Confidence Interval of the Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>mean1</td>
<td>32.331</td>
<td>33</td>
<td>0.000</td>
<td>1.30749</td>
<td>1.2252 – 1.3898</td>
</tr>
</tbody>
</table>

From the above table it is noticed that the mathematical average is 4.30 and with a standard deviation of 0.23. The average is larger than the standard value (3). The significance of the test is also clear. The significance value is 0.00 and is less than 5% so the results can be relied upon. This result has pushed the researchers to accept the first hypothesis. The A.B.C system provides the data which helps in guiding the operational management decisions such as: improving productions, increasing operational effectiveness and efficiency, controlling, measuring and evaluating performance according to suitable modern standards.

2. **Results of analyzing for the second hypothesis:**
   The A.B.C system provides cost data which enables us to achieve a high level of accuracy while calculating cost and helps the management in planning, controlling and making decisions. The following table shows the results of the statistical analysis of the second hypothesis, the set of questions in the
questionnaire concerning the mean symbolize these results. (Questions 12_23).

**One sample statistics:**

<table>
<thead>
<tr>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>mean2</td>
<td>34</td>
<td>4.4485</td>
<td>0.17530</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>t</th>
<th>df</th>
<th>Sig. (2-tailed)</th>
<th>Mean Difference</th>
<th>95% Confidence Interval of the Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>mean2</td>
<td>48.182</td>
<td>33</td>
<td>0.000</td>
<td>1.44853</td>
</tr>
</tbody>
</table>

From the above table it is noticed that the mathematical average is 4.44 and with a standard deviation of 0.17. The average is larger than the standard value (3). The significance of the test is also clear. The significance value is 0.00 and is less than 5% so the results can be relied up on. This result has pushed the researchers to accept the second hypothesis. The A.B.C system provides cost data which enables us to achieve a high level of accuracy while calculating cost and helps the management in planning, controlling and making decisions.
3. Results of analyzing for the third hypothesis:

The A.B.C system provides the data which enables us to determine the most profitable products and to get the suitable return which support continuity, developing and competitive ability.

The following table shows the results of the statistical analysis of the third hypothesis, the set of questions in the questionnaire concerning the mean symbolize these results. (Questions 24_33).

**One sample statistics:**

<table>
<thead>
<tr>
<th>One-Sample Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
</tr>
<tr>
<td>Mean</td>
</tr>
<tr>
<td>Std. Deviation</td>
</tr>
<tr>
<td>Std. Error Mean</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>One-Sample Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Value = 3</td>
</tr>
<tr>
<td>t</td>
</tr>
<tr>
<td>35.520</td>
</tr>
</tbody>
</table>

From the above table it is noticed that the mathematical average is 4.30 and with a standard deviation of 0.21. The average is larger than the standard value (3). The significance of the test is also clear. The significance value is 0.00 and is less than 5% so the results can be relied up on. This result has pushed the researchers to accept the third hypothesis. The A.B.C system provides the data which enables us to determine the most profitable products and to get the suitable return which support continuity, developing and competitive ability.
Results and recommendation:

Results:

1. The use of the A.B.C helps in pre accurate designing and planning all practical operational procedures.
2. The A.B.C system helps in controlling the operational process and following up the activities of the manufacturing route and consequently reducing the production pressure and increase the operational efficiency.
3. The A.B.C system provides a continuous control of the production process and consequently helps in directing the management operational decisions specially those relating to improving production and controlling, measuring and evaluating performance according to modern suitable standards.
4. The A.B.C system helps to determine how much each product has benefitted from the indirect cost whose relative importance increases under the automated manufacturing systems.
5. The A.B.C system provides a high ability to measure the real relation between the activity occurs and the cost realization.
6. The A.B.C system is considered as a sample to measure the demand of the resources system and provides more accurate cost data to measure production cost units effectively.
7. The A.B.C system helps in determining the products which are the most profitable, in getting the suitable return and raising the competitive ability of the establishment.
Recommendations:

1. The necessity of applying the A.B.C because it helps in redesigning the factory as a whole and reconstructing it as small integrated productive units.

2. Applying the A.B.C is a must to keep up with using advanced manufacturing systems which results in a high productive capacity, and consequently great changes in cost structure.

3. The necessity of applying the A.B.C 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. It is necessary to apply the A.B.C system because of the short economical life of a product, which requires developing or introducing new products.

5. Because of the severe competition, it is necessary to apply to the A.B.C system. So the Management concentrates and gives more attention to reducing the cost and determining the most profitable products in order to maintain their competitive position and their ability to continue and develop.

6. Having more practical and analytical studies to show the mechanism through which the A.B.C system can regulate the operational process and consequently reduce the pressure of production.

7. Industrial establishments should train and qualify specialized teams to apply the procedures of the A.B.C system.
References:

11- Haibo Hu , Primary Research of the Advantages and the Cost Control of the ABC& EVA Integrated System , www.ccsenet.org/ibr International Business Research Vol. 3, No. 3; July 2010 , Published by Canadian Center of Science and Education 141.