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Implementation Problems of Activity Based Costing: A Study of Companies in Jordan

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Author's contribution

The sole author designed, analyzed and interpreted and prepared the manuscript.

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ABSTRACT

The aim of this study is to know the implementation rate of activity based costing system in Jordanian Limited Liability Companies (LLC) and to know the most important problems which face the implementation process. Two data collection methods used in current study. Firstly, a quantitative method conducted by using a questionnaire survey to determine ABC adoption and implementation rate. This followed by a qualitative method, semi-structured interviews were utilized to find out the most important barriers and problems which face the implementation process of ABC implementation. The results of this study showed that ABC implementation rate in Jordanian Limited Liability Companies (LLC) is approximately 3.5% measured according to the third criteria which combine between implementers and users. This criterion used before by [3] in 2012. Regarding the interviews analysis, the data analysis counted on within-company analysis to know the background of each company, the barriers and problems encountering the implementation of ABC. This analysis followed by cross-company analysis to know all barriers and problems identified by all companies. The research results suggested that Jordanian Economic Crisis caused by the wars around Jordan in Iraq and Syria led to stop all the new management accounting initiative such as ABC. ABC is too costly, spending too much time, not our priority also a barrier mentioned by the companies. These followed by a lack of top management support, difficulties of choosing of cost drivers, Activity-based costing software can be expensive and high cost consultants as the problem

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hindering the implementation of ABC, followed by difficulty in identifying activities, lack of local consultants, and changes required for company structure to fit activities selected.

Keywords: Activity-based costing; strategic management accounting; cost drivers; overhead costs; traditional costing system.

1. INTRODUCTION

Many changes in business environment during recent years. These changes related to the increasing of global competition and reduction in product life cycles resulted from technological methods used in the industry [1,2,3,4]. Using a new advanced industrial technology has increased the automation and changed the cost structure because using machines instead of direct labor will lead to increase indirect costs [5]. [6] said that this problem will increase in the future because some companies around the world start using nanotechnology method in the industry therefore, this will increase the level of indirect cost which need more accurate allocation to the unit of product to achieve the competitive advantage for these companies. Many companies around the world start use new management practices such as balanced scorecard, total quality management practices, just-in-time, and activity based costing system [7].

Many researchers such as [8,9] said that management accounting implementation rate is still low and no many companies around the world implementing the new management accounting such as ABC or BSC. Most of the practitioners and researchers strongly advice companies to use an improved costing system such as ABC. The earlier studies criticized traditional cost accounting systems because it counts on a lack numbers of cost drivers such as machine hours, or direct-labor costs to divide indirect cost to the cost object [5]. [5] argued that TCS will lead to distort the cost of product and it will do not give us an exactly measure for activity performance or value addition activities. In the same regard, some studies such as [5,10,3,11] and [12] encouraged the companies to use ABC system rather than traditional costing system because ABC use more number of suitable cost drivers based on company activities not departments.

ABC was introduced in 1980s in the USA as a new improved system to calculate the unit of product cost by using more suitable cost driver, then support strategic decisions, control and

manage costs more effectively. However, although many benefits and advantages to ABC system its implementation rate is still low [13,14]. Some studies such as [15,16] said that many companies implementing ABC were still at the early stage of ABC implementation, this mean there are a problems faced the companies during the implementation of ABC which later led to abandoning the ABC system.

However, there are many studies around the world conducted on Activity-based costing system to know the factors which are influencing to the implementation of ABC such as [17,18,19,20,21,22]. Some other studies such as [23] tried to know the influence of ABC to financial performance. Lack number of studies paid more attention to the problems and barriers of ABC implementation such as [24,25, 3,12].

However, the Researchers didn't introduce a clear reason to the low implementation rate and most of these studies arrived different and ambiguous reasons. [26] said that this studies defined ABC implementation in different ways and they don't distinguish between the attending to the implementation and the really implementation. To make this idea more clear can take Jordan as an example when [27] found the implementation rate is 40% while [3] found it 19.5% in the same sector, therefore I can say that calculating of ABC implementation rate is not accurate. So, if the implementation rates are different because we don't determine what is the implementation the factors which influencing the implementation will be different also [19].

In the current study the researcher will segment the implementation to multiple stages to find the companies which are really using ABC system, these stages are: non-adoption stage, adoption stage, implementation stage, and using stage and I will send the questionnaires to the LLC to know their status regarding ABC. Then, the researcher will conduct an interview with financial managers in the implementer and non-implementer companies to know the most

important problems and barriers which face these companies.

Present study focused to Jordan because the significant economic growth in Jordan faced by new changes in the business environment, globalization and strong competition. The most important challenge started in 2000 when Jordan became a member of the World Trade Organization (WTO), and signed the Free-Trade Agreement with different parties, such as EFTA, Jordan Free Trade Agreement in 2001 by the U.S., Senate, and other different countries around the world (Ministry of Industry and Trade, 2016). These agreements encouraged more multinational companies to start its work in Jordan and this resulted in changes regarding management accounting practices in Jordan. These modifications will be piloted by the need of the Jordanian companies to implement cost accounting innovations for the purpose of having a competitive edge in the market. Based to companies control department in Jordan the number of Limited Liability Companies (LLC) in Jordan is 34571 and 1197 of these companies are industrial companies. In addition, LLC has a main contribute in the economic growth in Jordan.

2. LITERATURE REVIEW

2.1 Overview of Costing Systems

2.1.1 Traditional costing systems

A traditional costing system (TCS) is also known as a conventional system. This system has an important role in the company to distribute indirect costs to cost objects by using a limited number of cost drivers such as direct labor hours, machine hours, and direct labor

cost [28]. The determining of unit exactly cost is an important issue for helping the companies during the valuation of inventory for external reporting purposes, for planning and monitoring the cost, and for decisions making. Such as the decisions to produce or buy some material, to price products and services, to add or remove products and services, and to decide when to add or eliminate segment of the company [29,30,12]. [31] said that traditional costing system allocate overhead cost to products or services through two stages. Firstly, the overhead are assigned to the departments, and in stage two, overhead costs are allocated to products or services. The next figure shows the two-stage allocation under traditional costing system.

[30] said that applying the two-stage allocation happen through four allocation steps relates to the two stage of cost allocation. Firstly, assigning all overheads cost to production and service departments, then reallocating the costs of service departments to production departments, following step is calculating especial overhead rates for each production departments, and finally allocating departments overhead cost to products or other chosen cost objects. Thus, steps one and two relate to stage one and steps three and four relate to the second stage of the two-stage allocation process. [31] stated that only one overhead rate is developed for each production department although this rate may be not suitable for all departments. Then there is a need to a new more accurate system use more cost drivers which are more suitable and accurate in allocating the overhead cost. ABC appeared to present the chance to provide an enhanced decision-making bases for managers.

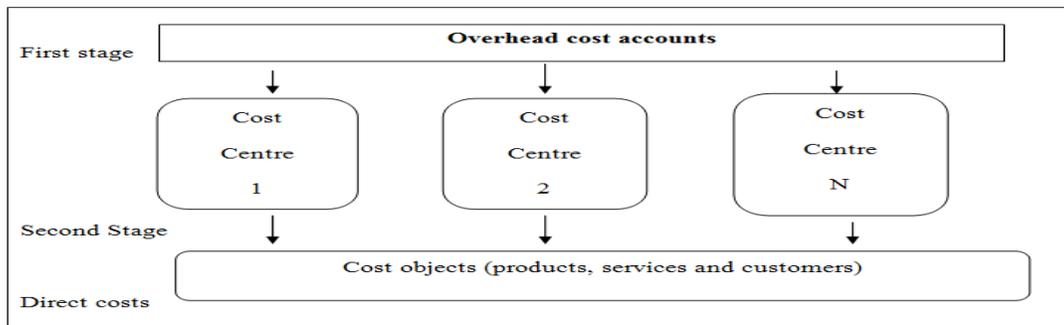


Fig. 1. Two stage process for traditional costing system

Source: Drury (2000: p.339)

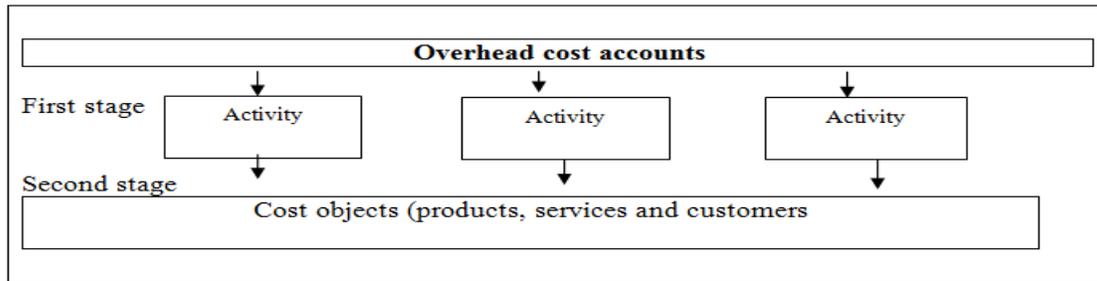


Fig. 2. Two-stage allocation procedure for ABC system

Source: Cooper, Kaplan, Lawrence, Morrissey, and Oehm, (1992)

2.1.2 Activity-based costing system (ABCS)

ABC is a costing system used to allocate overhead cost to the unit of product or service by following two stage allocation process firstly, it assigns cost to the activities secondly, it assigns cost to products based on products use of activities. This system is based on the concept that product consumes activities and activities consume resources [10]. [32] said that ABC system hold four necessary steps. These are: identifying activities, allocating overhead costs to activities, identifying outputs, and linking activity costs to outputs. The last essential four steps can be summaries into two stage allocation processes as mentioned before. First stage is the allocating overhead costs to the activities. This allocating count on the suitable resource's driver. In the second stage of the ABC process, overhead costs are allocated to products or service activities during the production process. [5] said that ABC system uses several second-stage cost drivers to allocate overhead costs to cost objects. Therefore, ABC systems use high number of second stage cost drivers such as set-up hours, number of times ordered, number of times handled, and other transaction- related bases. On the other hand, traditional costing system use a limited number of volume cost drivers such as, direct labor hours, machine hours and material dollars to allocate indirect costs to products or services.

2.2 Activity-based Costing (ABC) Systems: Empirical Studies

2.2.1 Activity based costing system implementation rate

Previous studies related to the implementation rate of activity based costing suggested that the adoption rate of ABC is increasing in different

countries around the world especially, in developed countries, for example [33] found that the adoption rate of ABC in US manufacturing companies has increased from 25% to 52%. In UK [34] said that ABC adoption rate is 6% but in 1995 [13] found it 20%. Similar results are found in Australian, the adoption rate is 12% in manufacturing companies [35] which increases to 19% [36]. Although several studies found increasing in ABC implementation rate. Some other studies found that this rate stagnates after high levels of initial increase. [18] found that ABC adoption rate in the New Zealand has decreased from 19.5% to 17.5% in the last ten years, in the same regard, [37] said that the activity based costing system implementation rate in USA in the health care industry is unchanged between 1994 to 2004. In Japan, [38] found the adoption rates about 7%. In Ireland [39] found that the adoption rate of ABC is 12%. [40] found it 20% in India while [41] found it 20.7% In china. Similarly, in Malaysia, [42] found that 18.3% of the small and medium industries adopted ABC system. Finally, in Jordan a local study done by [27] found the implementation rate about 40% while [3] found it 19.5% in the same sector. However, the Previous studies shows unclear result about the adoption rate of ABC system, may be this because the definition of the implementation is unclear, some defined it as a desire to adopt ABC and some other defined it as actual ABC adoption. In general, the studies show that the adoption rate is still low.

2.2.2 The reasons for non-Implementation of ABC

[24] conducted a study to know the most important barriers and problems for ABC implementation they found that the factors which inhibit the implementation of the system is lack of support, training and resources, software

support, experience, human resource availability, and perceived complexity. They also found that the reasons for rejecting the system is lack of significant difference in the product costs compared with the traditional systems, and lack of relevance to the company. The findings also indicate that there is a complexity in establishing the key cost drivers benefits. Finally, they found that most important reasons for not considering ABC is lack of knowledge and experience, small size of organization, satisfaction with current system, simplicity of the manufacturing process, and the irrelevance of ABC to the nature of the business.

Numerous studies such as [43,18,12] suggested that ABC is very complex and there are many barriers such as lack of top management support, internal resistance, human resource availability, expressed satisfaction with current systems, lack of knowledge, and a lack of resources such as a qualified work force, time, and effort [13,44]. However, there are many administrative and technical difficulties such as internal resistance, lack of top management support, human resource availability, lack of knowledge, and expressed satisfaction with current systems. Technical difficulties also include the problem of identification of cost driver, other difficulties include the identification and selection of activities, assigning resources to activities, assigning costs to products and the problems of collecting the necessary data [18]. Finally, some companies have not adopted ABC because they think that ABC just fad or fashions [45,46] Consistent result was apparent in [47] said that in the companies which still at the initiation and adoption stage, top management was afraid that ABC is not effective and it is fad and would thus finally lose its innovation. Consequently, they were somewhat hesitant to expend the company's resources on putting ABC into practice; they considered higher priorities for other changes.

In the current study, I will conduct a deeply interviews with user companies which started the really implementation after I segmented the companies to stages then I determined which companies are using ABC. Some of the previous studies did not segment the adoption and implementation. Moreover, the definition of the implementation differed from one study to another. The previous studies showed difficulties in comparing the findings from various studies, particularly relating to usage rates or ability

of factors to discriminate between implementers and non-implementers when the term of implementation have been subject to different definitions (Al-Omiri & Drury, 2007).

3. RESEARCH DESIGN AND METHODOLOGY

Two research methods were used in the current study, 1197 industrial companies chose as a sample of the entire population, the surveys were distributed by email and the initial survey was adopted to evaluate the current state of ABC implementation. In each survey the financial manager asked to give his company situation regarding ABC implementation by choosing one option of four options in the questionnaire. This method helps the researcher to determine the implementation rate then determine the suitable companies for interviews conducting. This survey is followed by semi -structured interviews conducted with financial managers / assistant financial managers within Jordanian Limited Liability Companies (LLC). Eight interviews with eight financial managers through eight companies have been interviewed, four of these companies that have not yet implemented ABC to know the barriers of ABC implementation and four companies that have currently implemented ABC or using ABC to know the most problems which are encountering during the implementation. The analysis of the data was set by using both within company and cross company analysis.

3.1 Data Analysis

3.1.1 Quantitative data analysis

For this study, the sampling frame for Jordanian Limited Liability Companies (LLC) was obtained from the Ministry of Industry and Trade in December 2015. The sampling frame contained 1197 Limited Liability Companies in Jordan. Data collection was carried out in the summer of 2016 using a mail-based questionnaire. The questionnaire was aimed to assess the current state of ABC implementation. The financial manager/assistant financial manager is usually linked to the implementation of ABC and most likely to operate information from it. Table 1 shows that of 1197 sent questionnaires only 256 were returned, a response rate of 21.4%. This process took place from 22th June 2016 to 9th July 2016. Table 1 shows the response rate in the questionnaire survey.

3.1.2 ABC implementation rate

Based on the results of the initial questionnaire the Jordanian Limited Liability Companies (LLC) which are listed in Ministry of Industry and Trade in 2015 are classified as shown in Table 2.

Table 1. Response rate

No. of postal questionnaires	All responses	Response rate
1197	256	21.4%

The first stage includes 207 companies classified as non-adopters of ABC; companies in this group still use traditional costing system and they don't adopt or implement ABC. The second stage includes forty companies classified as adopter companies. This type of Jordanian companies face cost allocation problem and the companies feel there are distortion in their cost. So, they got approval from top management to implement ABC system. The third stage includes five companies classified as implementer companies. These companies are described as companies that have started the implementation process of ABC systems, and they determined the goals, project scope and team, also in this stage the company will conduct training programs to the employees then they will determine the activities and cost drivers and they will start the implementation of the system in one or more segment of the company. Finally, 4 companies were classified as users of ABC; in this stage the companies have started using ABC information as a part of daily practices or integrating them with other systems.

[3] used three criteria to determine the rate of ABC adoption and implementation all that criteria adopted from the previous studies such as [48,49] and Bjornenak's (1997). In this study the researcher will use the third criteria which combine between implementer and users. The implementer companies include five companies who started the implementation process; forming the team of implementing; determining project objectives; employees training and workshops; analyzing activities and determining cost drivers [44]. The user companies include four companies only begun the using of ABC as a normal system in the company or integrating them with other systems [44]. However, the number of companies is nine companies

implementing ABC (five implementing stage and four using stage), therefore the implementation rate based to this criterion is 3.5% approximately, and this was less than expected in Jordanian Limited Liability Companies (LLC).

3.1.3 Qualitative data analysis

The companies could face technical, organizational and system problems before or during the implementation process or during the system usage in practice. These problems have a negative impact on the implementation process because it makes it slower, hindering, and even preventing implementation. Therefore, this study tries to determine the major barriers of ABC implementation and problems that may be faced by companies during the implementation process of ABC.

The data was collected by the conducting interviews with financial managers in eight companies; four of these companies don't implement ABC and four other companies are implementing or using ABC, to know the most important barriers and problems that encountering the implementation. The data analysis counted on within-company analysis to know the background of each company, the barriers and the problems encountering the implementation of ABC. This analysis followed by cross-company analysis to know all barriers and problems identified by all companies.

The research results suggested that most of the companies as six out of eight participating companies said that Jordanian economic crisis caused by the wars around Jordan in Iraq and Syria led to stop all the new management accounting initiative such as ABC. Five out of eight said that ABC is too costly, Spending too much time, not our priority. These followed by four companies suggested that a lack of top management support, difficulties of choosing of cost drivers is the main difficulty that they faced through the implementation process. Activity-based costing software can be expensive and high cost consultants are indicated by three companies as a problems hindering the implementation of ABC, followed by difficulty in identifying activities, lack of local consultants, and changes required for company structure to fit activities selected.

Table 2. Number of companies in each category of ABC implementation name of the stage number of the companies

Non-adopters	Adopters	Implementers	Users	Total
207	40	5	4	256

4. DISCUSSION AND CONCLUSION

This study suggested that the implementation rate in Jordan is still low only 3.5% of the Jordanian Limited Liability Companies are implementing ABC and this result was less than expected because the previous studies by [27] found the implementation rate is 40% in Jordanian manufacturing companies while [3] found it 19.5% in the same sector.

In addition, interviews revealed several barriers and problems may be influence the implementation of ABC within Jordanian LLC. The interview results found that the most problem hindering the implementation of ABC in Jordan is an economic crisis caused by the wars around Jordan in Iraq and Syria. This followed by ABC is too costly, spending too much time, not our priority, a lack of top management support and difficulties of choosing of cost drivers. Expensive software, high cost consultant's difficulty in identifying activities, lack of local consultants, and changes required for company structure to fit activities selected was another problems faced Jordanian companies. However, problem hindering the implementation of ABC in Jordanian companies are not different from those found in other studies as reported by Ghanbari et al. [12]; Faudziah and Rababah [3]; Majid and Sulaiman [47]; Cohen et al. [18]; and Innes & Mitchell [13].

5. RECOMMENDATIONS AND SUGGESTIONS FOR FUTURE RESEARCH

Activity based costing system is more accurate than traditional costing system but its implementation rate is still low because many barriers and problems facing the implementation. However, the main implementation barriers are still unclear. In this paper, I found some barriers and problems facing the implementation of ABC, these problems were economic crisis, ABC is too costly, spending too much time, not our priority, a lack of top management support and difficulties of choosing of cost drivers. Expensive software, high cost consultant's difficulty in identifying activities, lack of local

consultants, and changes required for company structure to fit activities selected. In an attempt to determine the main problems of ABC implementation I recommended that future studies should conduct a deeply studies using a case study method with user's companies, to know the most important problems that really facing the companies during the implementation then create a solution for these problems. Finally, I advise ministry of industry and trade in Jordan to conduct a training programs to increase the awareness level about the importance of accurate cost allocation by using ABC, and it should help the companies to implement the system by providing them with expertise's and consultants.

COMPETING INTERESTS

Author has declared that no competing interests exist.

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