

## THE CONCEPTUAL STUDY REGARDING ABC SYSTEM IMPLEMENTATION: EVIDENCE FROM JORDANIAN COMPANIES

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### ABSTRACT

*This paper attempts to contribute to the design and the successful ABC implementation in the Jordanian manufacturing companies. The research methodology included both quantitative and qualitative techniques. The questionnaire survey was developed for the primary aims of determining the current state of, and the factors which influence ABC adoption and implementation. In the second stage, semi-structured interviews will be conducted with 13 companies for more probe and clarification. The analysis of the data will be run by using both 'within company' and 'cross-company' analysis. The results will determine the three criteria that are used to determine the adoption and implementation rate of ABC and the factors which influence ABC adoption and implementation.*

**Keywords:** *Activity-based costing (ABC), developing countries, manufacturing companies, Jordan*

### Background of the Study

In recent years, most organizations have faced fast changes in their business environment. Management challenges have been intensified by the deregulation, in conjunction with the increasing global competition and reduction in product life cycles resulting from technological innovations (Abdel-Kader & Luther, 2008; Narong, 2009; Fei & Isa, 2010b). Emergence of advanced manufacturing technologies has resulted in greater automation and changes in the cost structure. The cost structure changes involved direct labor costs being replaced by indirect

costs (Cooper, 1988). As a consequence new management practices, such as just-in-time management philosophy, total quality management practices and activity based costing system have emerged.

Numerous studies criticized traditional cost accounting systems because these systems adhered to the hypothesis that products or services are the main reason for creating costs (Green & Flentov, 1991; Cooper, 1988). Other researchers such as Datar and Gupta (1994) stated that costs are often allocated based on single-volume measures such as direct-labor costs, or machine hours. They also argued for possibility of distortions due to this fact in determining or calculating many types of cost. Gunasekaran (1999) further added that traditional cost systems do not give an accurate measure for activity performance and the reports do not give us any information about the value added activities.

The studies of Turney (1996) and Popesko (2010) in their definitions, consider ABC to be the method of measuring cost and performance of activities and cost objects. The basis on which it assigns cost to activities is their use of resources. After that, it assigns cost to cost objects on the basis of their use of activities. However, traditional cost accounting is different from it, due to the assumption that cost objects consume resources.

However, the studies on ABC system still take a central place in accounting studies. This place has been taken since the early empirical study of Cooper and Zmud (1990), who examined certain factors affecting the implementation stage differently. Researchers have developed various interpretative perspectives to know and highlight the factors affecting ABC adoption and implementation (Shield, 1995; Malami, 1999; Maelah & Ibrahim, 2006), and the stages of its implementation processes (Anderson, 1995; Krumwiede, 1998; Brown, Booth, & Giacobbe, 2004). However, most of these studies arrived to ambiguous, different, and divergent results.

Numerous studies stated that there is a need to segment ABC adoption to stages. This segmentation is necessary at the time of researching the success by examining ABC at sites maturity. The result of ABC implementation often is achieved after the using stage, specially, in financial performance improvement (Krumweide, 1998; Baird et al., 2004; Liu & Pan, 2007; Fei & Isa, 2010a). Numbers of previous literature such as Krumwiede (1998) and Gosselin (2006) have segmented the ABC implementation to stages. The number of stages was done differently by different researchers to suit the requirement of the study. More generally, this should be a consideration for any study examining a new system

implementation (Fei & Isa, 2010b). Therefore, in the current study, the researcher will segment the adoption and implementation of ABC to several stages. These stages are non-adoption, adoption, abandonment, implementation, and usage stage.

Many researchers such as Clarke, Hill & Stevens (1999) and Al-Omiri & Drury (2007a,b) said that although there are many differences between sectors, previous studies have tested factors affecting the adoption and implementation of ABC without separating the industrial and financial sectors. They also did not separate manufacturing industries from non-manufacturing, in which ABC system has been adopted. This lack of separation may lead to ambiguous and vague results.

Previous studies such as those of Krumwiede (1998); Brown et al., (2004); Cohen et al., (2005); Baird et al., (2007) and Al-Omiri & Drury (2007b), used the questionnaire survey in their studies. They allowed the respondent to self-specify whether his/her company used (operated) an ABC system or not. Krumwiede (1998) and Al-Omiri and Drury (2007a) argued that studies which only used questionnaire survey arrived at a mistaken, overstated or ambiguous result, and do not provide proof that companies claiming to be ABC adopters are really ABC adopters. Following the above argument, for using the mixed method, the population of Jordanian manufacturing companies is chosen in this study as a major source of data.

In this research, mixed methods are used. Firstly, a questionnaire survey is designed to include suitable control questions that allow the researcher to check respondents' claims that their firms which are implementing ABC systems are really ABC adopters or operators. Secondly, face-to-face interviews are carried out with adopter firms for additional clarification and explanations about ABC system. Therefore, the current study is able to corroborate if the respondents claiming to use ABC, are actually ABC users.

This study focuses on Jordan because of the new changes in Jordanian business environment, globalization and strong competition faced by the Jordanian companies which resulted in more multinational companies establishing joint ventures or regional offices in this particular country which in turn resulted in changes regarding management accounting practices in Jordan. These modifications are piloted by the need of the Jordanian companies to implement cost accounting innovations for the purpose of having a competitive edge in the market (Hutaibat, 2005).

## Problem Statement

Many academics and practitioners considered ABC to be the most significant innovation in management accounting of the 20<sup>th</sup> century (Kaplan & Anderson, 2004; Askarany & Yazdifar, 2007; Abdel-Kader & Luther, 2008). ABC system has been described as an improved method of allocating overhead costs, evaluating product profitability, and managing operating costs (Baird et al., 2007; Cohen et al., 2005). In addition, the results of these studies show that using volume based costing to calculate products cost will produce error reports, which is unsuitable for decision making. On the other hand, the practitioners of ABC have been expected to reduce costs by 3% to 5% and to increase revenue growth by 5 % to 15 % (Kaplan & Anderson, 2004).

Many advantages to the ABC adoption rates exposed by studies show that ABC is implemented only by 20% to 30% of organizations (Innes & Mitchell, 1995; Innes et al., 2000; Kaplan & Anderson, 2004; Askarany & Smith, 2008; *Stratton, Desroches, Lawson, & Hatch, 2009*). However, other studies such as, those of Arnaboldi & Lapsley (2005); Byrne, Stower & Torry, (2009); Velmurugan & Nahar (2010), and Rasiah (2011) revealed that many companies adopting ABC are still at the early stage of ABC implementation. These studies also revealed that most of the attempts to implement it ended in the narrow application of ABC in trivial services or in unused systems. Moreover, there is a rising proof to suggest that most of these companies faced problems during the implementation of ABC and, in extreme cases, did not have success with it, which later resulted in abandoning the ABC system altogether. On the other hand, TCS continues to be increasingly implemented in most of the companies (Innes et al., 2000; Al-Omiri & Drury, 2007b; Marie & Rao, 2010). This hassled to the basic question why management accounting innovations, such as ABC have been slow to change with the ever evolving, fast-pace change in organizational and technological environment throughout the previous two decades.

Several recent studies have started addressing this issue via highlights of the response to the questions of ABC adoption rate, the reasons for implementing ABC, the problems connected with ABC adoption and implementation and critical success factors linking to its successful implementation (Gosselin, 2006; Askarany & Smith, 2008; Rahmouni & Charaf, 2010).

However, the empirical evidence from ABC research is problematic. Firstly, the degree of ABC implementation in a variety of countries varies extensively; some countries show an increasing trend in ABC

implementation while other countries show a decreasing one. Moreover, researchers in the same country have found extensively different results about the adoption rate (*Stratton et al.*, 2009; Baird et al., 2004, 2007; Brown et al., 2004; Booth & Giacobbe, 1997).

There are different interpretations of the term "implementation". Some studies defined it as "actual ABC implementation". Some other studies defined it as "consisting of either actual implementation or a desire to implement it". Besides, the basis for comparing the factors influencing the implementation of ABC in some studies comparing companies adopting the implementation of ABC has differed from the studies of companies not adopting ABC implementation. Therefore, comparing the findings from the various studies is difficult. This is particularly true when the comparison is related to usage rates or ability of factors to discriminate between implementers and non-implementers when there are different definitions of the term "implementation" (Al-Omiri & Drury, 2007b).

Secondly, the factors motivating the implementation of ABC, the barriers and problems of ABC implementation, and critical success factors show wide variation in results among different studies (Brown et al., 2004). This variation is often due to measuring success in different ways (Swenson, 1995; Cohen et al., 2005; Baird et al., 2007).

Considering these flaws in existing findings, the similar issues need more investigation in Jordan. Hutaibat (2005) said there are rapid economic growths in Jordan, especially now that Jordan has become a member of the World Trade Organization (WTO), and signed the Free-Trade Agreement with different parties. Fei and Isa (2010b) said that majority of empirical researches have been carried out in Western countries, but very little empirical research has been done in developing countries on ABC adoption and implementation. They recommended conducting future research in developing countries such as in China, since China is one of the fastest growing economies in the world and it has been a member of the WTO since 2001. The same should be applied to developing countries that have become members of the WTO such as Jordan. Furthermore, Abu Mogli (2008) said there is a lack of studies concerning the implementation of ABC in Jordan.

So far, little is known about the Jordanian manufacturing sector concerning the level of ABC adoption and implementation and related factors such as motivating, facilitating, and factors that create barriers to implementation (Al-Khadash & Feridun, 2006). Thus, it is necessary to examine whether ABC could be successfully implemented in Jordan and

the factors influencing ABC success in the country in light of its distinct culture. Supitcha and Frederick (2001) and Fei and Isa (2010a) said that little research has been done concerning the role of culture on ABC's successful implementation. Shields (1995) argued that one accounting technique that can be successfully adopted in one country does not guarantee the successful implementation in another country because ABC system success is determined by organizational and behavioral factors in developed countries.

### **Research Objectives**

The aim of the present research is to contribute and enhance the design of ABC implementation in Jordan, and to know the barriers and problems of ABC implementation in the Jordanian manufacturing companies. The objectives of this research are outlined below:

1. To examine the extent of ABC implementation within the Jordanian manufacturing shareholding sector.
2. To examine the significant difference between ABC users and non-users based on company characteristics.
3. To identify the reasons for non-adoption of ABC system.
4. To determine the factors that work against ABC implementation in the companies that adopted/abandoned ABC.
5. To identify the factors that are directly associated with the implementation decision of companies that are currently implementing/using ABC system.
6. To determine the main factors motivating the implementation of ABC system in companies currently implementing/using ABC.
7. To determine the main factors facilitating the process of ABC implementation in companies currently implementing/using ABC system.
8. To identify the problems faced during ABC implementation in companies currently implementing/using ABC system.
9. To ascertain the views of the user companies on the degree of success of ABC system.

### **Significance of The Study**

The significance of this study stems from the fact that this study takes the ABC system in manufacturing companies of Jordan into account. These companies need to find a new method to reduce costs in the new environment (Kasharmeh, 2002). Therefore, this study presents an

effort to fill a part of the gap in the literature and reduce the vagueness regarding the current state of ABC adoption and implementation among the Jordanian manufacturing companies.

This study will help to identify the extent of ABC adoption within the Jordanian manufacturing sector by the segmentation of ABC adoption and implementation into different stages. This is the first contribution of this study. Most previous studies did not segment ABC adoption and implementation to stages. Previous researchers such as Liu and Pan (2007) and Fei and Isa (2010) recommended that future studies must specify the ABC implementation stage.

Secondly, most previous studies focused only on the implementation of ABC in Western developed countries such as Ireland (Clark et al., 1999; Pierce & Brown, 2004), UK (Innes & Mitchell, 1991, 1995; Innes et al., 2000), USA (Anderson, 1995; Groot, 1999) Australia (Booth & Giacobbe, 1997, Brown et al., 2004) and New Zealand (Cotton, Jackman & Brown, 2003). The results of the current study have contributed in terms of obtaining knowledge in the area of the implementation of ABC, particularly in Eastern developing countries like Jordan.

As the third contribution, this study used a multi-attribute measure of ABC implementation success within the Jordanian manufacturing sector. Considering observed ABC maturity and usage stages, this multi-attribute comprises satisfaction with ABC implementation, ABC information characteristic rating, the degree of using ABC in decision making, and the overall success of ABC implementation. Most of the previous studies measured success at different stages and was not based on ABC maturity.

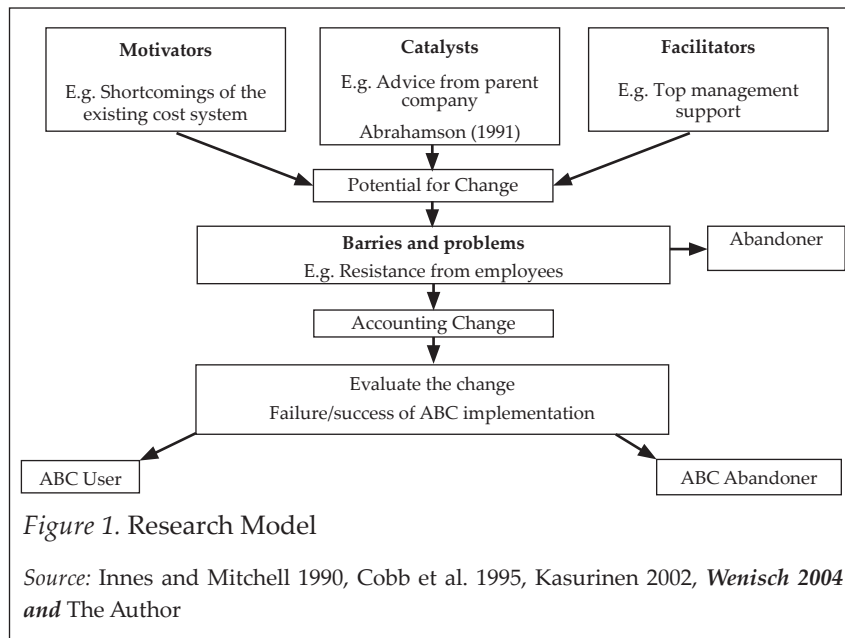
The fourth contribution is the development of a conceptual model of ABC implementation in manufacturing companies. It allows for the development of a more sophisticated understanding concerned with the factors catalysts, motivating, facilitating, and creating barriers to ABC implementation in the context of an Eastern developing country. It also contributes by cutting off various issues about the factors influencing the ABC implementation.

Finally, most of the previous studies have allowed the respondents' self-rating of their company on the basis of use or non-use of ABC. In this study, several control questions are included in the questionnaire to check the respondents' claims that they were operating an ABC system which is authentic. In addition, semi-structured interviews will

be conducted with 13 companies representing Jordanian manufacturing companies' adoption and implementation stages for further explanation, supplementation, and discovery of new factors which may influence the ABC adoption and implementation. Therefore, compared to previous studies, this study has much higher probability that respondents claiming to use ABC provide authentic information of ABC users.

### Research Model

The researcher will adopt theoretical framework of management accounting change models which were introduced by Innes and Mitchell's (1990) model which contains three types of factors; the first being, motivator factors influencing the implementation of ABC in general manner. This includes changes in cost structure, shortcomings of the existing cost system, and change in business environment. Second are the catalyst factors which associate directly with the implementation decision. Abrahamson (1991) classified these factors as efficient-choice, force decision, and fad or fashion. Finally, the facilitator factors, which provide managers with the favorable conditions that are necessary but not sufficient by themselves for a management accounting change, such as training, consultant, top management support, non-accounting ownership, internal champion support, education and IT.





Cobb et al. (1995) and Kasurinen (2002) developed this model by adding the barriers and problems that may be faced during the change. If the company faces a problem, they will abandon or overcome the problem and start the change by the process of implementation as explained by the diffusion innovation theory. Wenisch (2004) evaluated the BSC success. If the company found the system successful, it will continue using it and if the company found failure, the company will abandon the change. The Figure below shows the model that will be used in this study.

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