

# CONCEPTUAL FRAMEWORK OF ENVIRONMENTAL FACTORS AND TECHNOLOGICAL FACTORS AFFECTING THE ADOPTION OF (ABC) SYSTEM IN JORDAN

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## Abstract

***This paper examined the Activity-Based Costing (ABC) to create a better understanding of the ABC adoption systems, and comparing ABC adoption in the manufacturing and services sectors in Jordan, this study uses the survey method to collect data. 400 questionnaires were distributed to the sample. This study uses smart PLS to analyze the data. The results show that the variables namely (environment factors, Technological factors) have a positive impact on ABC adoption.***

***Keyword: Adoption of ABC system, Environment factors, Technological factors.***

## 1. INTRODUCTION

Manufacturing companies in Jordan are undergoing some organizational changes in order to compete in the local and global markets and this requires changes in manufacturing and management strategies. Despite this, it thus remains a matter of concern that there is a dearth of studies that have investigated the zero-order relationship between the adoption of ABC and improvement of businesses in the developing country context. It thus becomes necessary for this gap in knowledge to be explored (Rababah 2012).

The right decisions for adopting new innovation technologies are identified by what exactly is existing changes will suit with the current technology (Chen, Low, & Wu, 2011; Makena, 2013; Nedev, 2014). In the present study, the technological factor is viewed as the degree to which decision makers perceive the total cost of using ABC lower than other traditional methods.

The adoption of new technologies has increased competition worldwide due to globalization and has

allowed the manufacturers in the Far East to compete with the western markets in various products. Globalization ensures that manufacturing organizations constantly search for improvement in order to be able to continue to exist and thus they look to adopting new and advanced strategies in manufacturing and management accounting in order to remain competitive. To achieve this objective, organizations have improved their management methods; the activity based costing (ABC) system being one of them (Hitt & DeMarie 1998).

Survey evidence suggests that, over the past decade, there has been a growing awareness of ABC, but the overall rate of implementation has been low (Cohen, Venieris, & Kaimenaki, 2005). Firms avoid practicing ABC due to the costs that accompany its installation as well as the need for special training or employing new staff for practicing CASs (Quesada-Pineda, 2010). Based on the traditional costing methods which depend on allocating the cost based on non-logical criteria, which will lead at the end to allocate unjustifiable cost to the final product, regardless if this cost is associated directly or indirectly with this product (Hardan & Shatnawi, 2013).

The researcher seeks, due to the majority of empirical studies indicated by applying ABC system in manufacturing and services sector, maximizing its profitability by increasing its competitive edge in the market place that the organization is operating in, enhance financial performance without any negative impact on the quality of the provided products, services. However, the percentage by applying ABC in manufacturing and services sector in Jordan still low percentage of were about 10% based on (Khasharmeh 2002), was about 10.6% in the same sector (Al-Khadash 2006). The rate of ABC implementation in Jordan (8.5%)

is less than the rates found in the previous studies. We argue that part of the explanation for this contradiction might lie in differences in the ways previous studies have defined and operationalized activity management, and in the approaches, they have taken to measure success. In particular, studies have typically failed to consider that organizations might choose to operationalize activity management practices at different levels and for different purposes.

The present study puts into consideration the dimensions of the problem; by taking into account, the environment factors, Technological factors, as well as the organizational culture in context.

This study interested in develop model in ABC adoption in manufacturing and services sectors. The interesting comes from the real problem which are a few corporations were applied ABC in Jordan, and there are several studies that companies the variables (Environment factors, Technological factors) with ABC adoption, In general. The moderator of organizational culture has not yet tested in these relations, so the real gab has appeared for this study. This study expected to provide attention to words the strength and limitation adoption of ABC.

## **2. LITERATURE REVIEW**

### **2.1. Environmental Factors**

The evolution of the manufacturing environment factors requires a cost system that can cope with any changes. Previously, products were produced in high volumes with long production runs and long-life cycles whereas, nowadays, products are produced in low volumes with low production runs and a shorter life cycle. Nowadays, technology has replaced manpower in most places and information processing costs have been reduced. Thus rather than direct labour, more indirect resources and activities are used (Agbejule, 2006).

There has been an enormous change in the manufacturing and services environment over the last three decades. Production in manufacturing and services companies has been facilitated by computers, computer incorporated systems and robotics. These automatic systems enable manufacturing companies to produce products which were previously considered impossible to produce but which are now being manufactured in other hand services companies using

computers and technology for their services (Dorgham, 2007).

Elagili (2015) developed a framework was based on the survey findings, which includes the influence of disparate contingent factors on the use of cost accounting systems. This study found that the legal requirement positively and significantly influence Libyan agricultural firms to use cost accounting systems.

Geiger & Ittner, (1996) found that government agencies Consistent with institutional perspectives that have legislative requirements for cost accounting data tend to implement elaborate systems that meet these requirements, However, they do not use cost information for internal use in their organizations, for activities such as managerial decision making, Units that are legally compelled to be self-supporting due to revolving funding requirements also tend to adopt ABC cost system that utilize more data sources. Most of the researchers have argued that a lack of legal requirement affects the use of CASs in agricultural firms. For instance, Vazakidis et al. (2010) claimed that European farmers do not publish financial statements because of the lack of legal requirement, and this finding is supported by Argiles and Slof (2003). The legal requirements were found to influence the adoption of ABC system in the Libyan agricultural firms statistically and significantly (fatah, 2013).

By comparing the theoretical adoption factors for the ABC system (gathered from the literature review) with those factors that emerged from the two case study organizations, a substantial amount of consistency was found but, after analyzing and deliberating on the data collected during the fieldwork, a new factor relating to the adoption factors for the ABC system was revealed which can be termed as the compatibility between state laws and organizational policy (Elagili, 2015). And another research for Szychta, (2002) found that all of the respondents stated that the usefulness of accounting systems is to prepare financial statements according to accounting law and for tax purposes, argued that accounting legislation is one of the important factors that influence firms for adopting ABC system.

The rise of ABC adoption has been linked to the strong competition. These factor make traditional costing system unable to determine accurate costs of products and services( Bani Ahmad & Rbaba, 2014).The fierce global competition in the international markets forces manufacturers to compete in quality, cost, and the time

to market aspects of their products. Knowing the cost of the manufactured components is essential for efficient operation and competitive production (Ben-Arieh & Qian, 2003).

The results of study for Abusalama, (2008a) show a strong significant association between types of competition and the adoption of ABC. Analysis of the quantitative and qualitative data results shows presented by (Rababah, 2012) that the important factors that motivate ABC adopting and implementation process were increase competition. Pavlatos and Paggios (2009) argued that there is no relationship between the cost system functionality and the level of competition in the hotel sector. Hill (2000) claimed that there is a relationship between the adoption of a costing system and the intensity of competition. Hill argued that competition alone is not a critical variable in the adoption of costing systems in hospitals but both competition and revenue constraints together lead hospitals to adopt costing systems. Thus, the following hypothesis is developed:

***H1: There is a positive relationship between environment factors and adoption of the ABC system in Jordan manufacturing industry and services sectors.***

## **2.2. Technological Factors**

Otley (1980) contends that technological factors are the simplest and longest established contingent factor used in management accounting and states that the nature of the production process determines the amount of cost allocation rather than cost apportionment that takes place. In job-order costing, the measure of production is well-defined and only limited allocation and averaging are required because a large proportion of total costs can be directly associated with particular jobs. Daft and Macintosh (1978) argue that organizational technology places a critical constraint on the design of the information system, and found a strong relationship between the technology of a work unit and the amount and type of information participants required to perform effectively. Also find that successful information systems vary systematically according to the technology used.

The use of high technology in production, the widespread use of the advanced machine and its electronic control and the use of flexible manufacturing

systems integrated into the factory has changed the structure of costs. This change led to the loss of traditional systems used to monitor costs and control, ensuring that their needs are accurate and sound. Organizations recognize the fact that traditional cost systems are no longer suited to the modern business environment, making them quickly adopt systems that provide them with their high-resolution information such as (ABC) system. (Nadia, 2017).

Brown et al (2004) examine the influence of product diversity as a technological factor on firms' initial interest in ABC and their decision to adopt it or not. The results indicate that product complexity and product diversity display significant and positive association with the implementation of ABC systems. and other hand the Results indicate that higher levels of cost system sophistication are positively associated with the importance of cost information, No association was found between the products diversity and ABC adoption (Al-Omiri & Drury, 2007), the view taken in this research which presented by (Abusalama, 2008a) is that the Products Diversity likely render ABC appropriate for adoption.

According to Schoute, (2011) examines the associations between product diversity and activity-based costing (ABC) adoption. Theory strongly suggests that products diversity is a major determinant of the demand for ABC systems. Therefore, the researcher considers the products diversity should have an impact on the ABC adoption.

Detailed information on the manufacturing of products has gained a lot of importance and such information can be obtained through the use of the ABC system since it can provide the required information about any product in an accurate and detailed way. This will assist in informing the decision-making process regarding, for instance, the reduction of costs and pricing policies (Ismail, 2010). Such detailed information can also effectively improve the control and monitoring process on the overhead costs by identifying their sources. Moreover, the detailed information about products obtained from the ABC system assists in making strategic decisions. The detailed information provides information on the expenses according to the activities which, in turn, helps the organization to reduce or stop high cost activities to undertake such activities and instead to focus on the low-cost activities (Thaher, 2002).

Brown et al., (2004) have demonstrated that overhead costs have become an extra load on the cost of products which has led to a distortion in the traditional cost accounting systems which makes them ineffective and problematic for calculating the actual cost of products, ABC is considered the best cost accounting system used in present-day companies.

Vieira & Hoskin (2004) and Majid & Sulaiman (2008) considered the overhead costs of an organization to be a factor that assisted in the adoption of activity based costing. Companies that have more overheads in the manufacturing of products tend to adapt ABC systems, rather than companies that have lower overheads. This is because the computation of more overhead costs is the main element of the ABC system, differentiating it from the traditional cost systems.

Ahamadzadeh, Etemadi, & Pifeh, (2011) have demonstrated that the results of this survey study indicates a positive relationship among cost structure and adoption ABC system in Iranian Organizations. And other hand, The study results showed presented by (Elagili, 2015) that that the existing cost accounting system does not provide adequate and detailed information about costs; particularly it does not provide adequate information about the increase in the overhead costs which have resulted from the innovations in the companies' factories. Azizi Ismail, (2010) identified that ABC enables management to identify opportunities to further develop processes and also provides essential information for cost reduction.

In Chinese economy, with growing global competition as a catalyst, with the foreign investment injections and technology transfers, business organizations in China have the opportunity to rapidly improve their information technology and information systems. despite the rapid rate of technological progress, a relatively slow pace of advancement in adoption ABC practices has been observe (Sulaiman, Nazli Nik Ahmad, & Alwi, 2004). Thus, the following hypothesis is developed:

**H2: There is a relationship between technological factors and adoption of the ABC system in Jordan manufacturing industry and services sectors**

### **2.3. Moderating Effect of Organizational Culture**

Culture is defined as a "pattern of shared beliefs and values that give members of an institution meaning, and

provide them with the rules for behavior in their organization" (Davis, 1984). Andrew Pettigrew published an article entitled On Studying Organizational Culture in 1979. Pettigrew (1979) He described "the culture as the amalgam of beliefs, identity, rituals and myths within an organization. This early conceptualization has clearly influenced the evolution of the study of organizational culture today" (Toscano, 2015). Since then, organizational culture becomes an important concept in organizational behavior studies. Organizational culture is usually 'defined as social or normative glue that holds an organization together it expresses the values or social ideals and the beliefs that organization members come to share" (Smircich, 1983). Another definition "the set of key values, assumption, understanding, and norms that is shared by members of an organization and taught to new members as correct (Daft, 2005).

When considering organization culture as a tool, organization culture can lead to business competitiveness, the managers should motivate their enterprises to be more innovative and use the technical knowledge and skills associated with the innovation (Glisson, Williams, Hemmelgarn, Proctor, & Green, 2016; Putthiwani, 2015). Who work in proficient cultures report that they are expected to be effective and with proficient culture provide higher quality service and better outcomes (Glisson et al., 2016). According to karim, (2013) a questionnaire was used to collect data on the organizational cultural meant supposed to facilitate the adoption of ABC by companies. The results indicate that the emphasis on the cultural factors explains the adoption.

Based on the study Baird et al., (2007) argued examines the success of activity management practices and the organizational and cultural factors affecting success at each of (Gosselin's, 1997) three levels of activity analysis (AA), activity cost analysis (ACA) and activity-based costing (ABC). The results indicate that activity management is moderately successful in Australian organizations, with greater use associated with higher levels of success. Two organizational factors (top management support and link to quality) were associated with success at each of Gosselin's three levels, whereas training was associated at the AA and ACA levels. The cultural factor of outcome orientation was associated with success at each level, with attention to detail important at the ABC level.

The researcher suggested the moderating effect of organization culture on the adoption of the activity-based cost system in the manufacturing and services sectors in Jordan. Thus, the following hypothesis is developed:

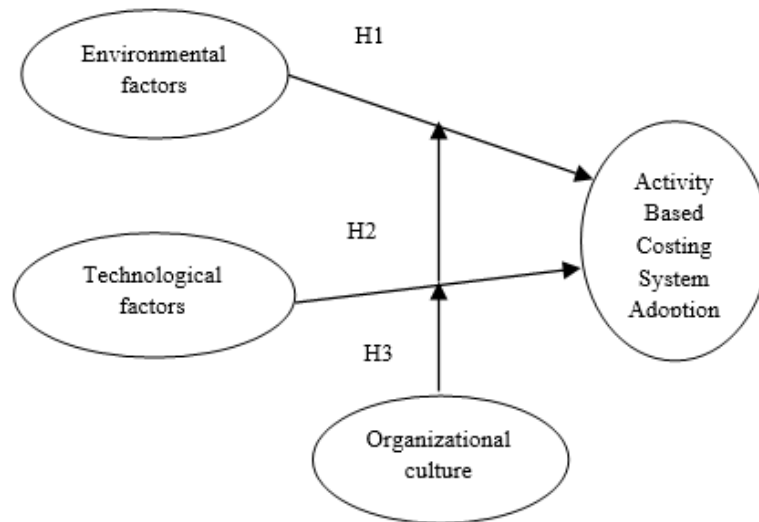
**H3: organizational culture moderates the relation between environmental factors and technological factors with the adoption of ABC.**

### 3. CONCLUSIONS

In view of the discussion in the previous sections, the Following framework is proposed, depicted in Figure 1, for this research. Prior research suggests the relationship

between ABC adoption and the factors such as (environmental factors and Technological factors) hence; In particular, this paper intends to investigate the roles of the ABC adoption factors among manufacturing and service companies listed on the Amman Stock Exchange (ASE). To achieve this characteristic are proposed, namely, (environmental factors and Technological factors) on the other hand; Organizational culture has also been incorporated in this conceptual framework as a moderator the three hypotheses are developed to validate the hypothesis survey research will be undertaken. Figures1 below represent the proposed conceptual framework.

Figure 1: conceptual framework



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