



The Link between Information Technology, Activity-based Costing Implementation and Organizational Performance

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ABSTRACT

Activity-based costing (ABC) is as a strategic tool that ensures accurate product costs as compared to traditional costing system. The implementation of ABC implementation offers useful information for performance measurement, cost control and strategic decision-making. Meanwhile, certain factors such as information technology (IT) determine the success of ABC implementation and its impact on organizational performance. However, past studies in this realm have neither been so emphatic in explaining the role of IT usage in implementing ABC in organizations nor examined the perception of employees and organizations' decision makers towards the adoption of ABC. In addition, the government of Iraq and the Central Bank of Iraq has also issued strong recommendations to Iraqi banks to consider initiating ABC due to its influence of reduction cost. Thus, this study is motivated to examine the direct and the indirect relationships between IT, ABC implementation and organizational performance of banks in Iraq. This study surveyed 150 chief accountants of banks in the North region of Iraq. The data collected was analyzed using SPSS Version 21. The study revealed that there is a significant relationship between IT, ABC implementation and organizational performance. Also, the findings of this study demonstrated that, ABC implementation partially mediates the relationship between IT, ABC implementation and organization performance. Future researchers are recommended to consider other contingency factors and examine their effect on ABC implementation and organizational performance.

Keywords: Organizational Performance, Information Technology, Activity-based Costing Implementation, Contingency Factors

JEL Classifications: M41, M40, M150

1. INTRODUCTION

Activity-based costing (ABC) has been widely identified as a sophisticated cost management technique that is used to manage and reduce cost as well as improving organizational performance. ABC is explained by a large number of authors (Ahmed, 2012; Kongchan, 2013) as a strategic tool that ensures accurate product costs as compared to traditional costing system. ABC implementation also offers useful information for performance measurement, cost control and strategic decision-making. Notably, the upsurge of researchers' and practitioners' attentions towards the implementation of ABC in organizations was as a result of ABC superiority over traditional costing methods and subsequently its significance in enhancing organizational performance (Fei and Isa, 2010; Fatma and Habib, 2014). As such, many organizations from different industries, including the banking

industry have focused their attentions towards the implementation of ABC due to the ability of ABC to provide accurate costing information and enhance organizational performance. Contingency theorist have argued excessively on the important nexus that exist between ABC implementation and some contingency factors such as information technology (IT) (Baird et al., 2004). However, studies in this realm have neither been so emphatic in explaining the role of implementing ABC in organizations nor determine the perception of employees and organizations' decision makers towards the implementation of ABC (Kongchan, 2013). In addition, far little studies have examined how the implementation of ABC impact on organizational performance. In this regard, a sizable number of contingency theorists have studied the impact of certain contingency factors on organizational performance and examined the effect of contingency factors on the process and success of ABC implementation (Anderson, 1995; Askarany et al., 2007).

Nonetheless, most of these previous studies focused on the manufacturing industry, little effort has been exerted on the financial or banking sector (Hao, 2009). Meanwhile, Hussain and Gunasekaran (2001) reviewed that ABC is a costing system that is more pertinent to the service sector such as the banking industry.

Like some other developing countries, the implementation of ABC for cost management in organizations is still evolving in Iraq. Although few study studies have reported that, ABC is currently initiated across industries in Iraq. Other studies affirmed that, ABC is used as a tool for planning, control and decision making in service management among organizations in Iraq (Ahmed, 2012). In addition, the government of Iraq and the Central Bank of Iraq has also issued strong recommendations to Iraqi banks to consider initiating ABC due to its influence of reduction cost. Thus, this study is motivated to examine the direct and the indirect relationships between IT, ABC implementation and organizational performance of banks in Iraq.

2. LITERATURE REVIEW

2.1. The Relationship between IT and ABC Implementation

IT is the digitalization or the automation of organizational operations. The application of IT in operational process proffers the ability to disseminate timely and accurate information, resulting in improved managerial and employee decision-making process. In the banking sector, information technologies can be applied in both accounting-related and non-accounting processes. Overall, the application of IT plays a critical role in modern business, especially regarding the accounting function and management control. This is because, information technologies have radically transformed the nature of business and accounting practices (Hunton, 2002). As indicated by Sadagopan (2003), some of the most ordinary accounting processes which have been influenced by the application of IT include: General ledger, accounts receivable, accounts payable, financial control, asset management, funds flow, cost centers, profit centers, profitability analysis, order and project accounting, product cost accounting, and performance analysis. Invariably, the integration of IT into the banking systems offers invaluable implications to the entire areas banking services and accounting systems (Hunton, 2002). The rationale for deployment of IT into the banking systems is chiefly enhance reductions in management routines and subsequently to transform from a transaction oriented institutions into an information analyst institutions (Hunton, 2002). This transformation however, is consistent with the rationale behind the functionality of ABC and hence, the reason why ABC is being celebrated as a sophisticated cost management system. Anderson (1995) asserted that, the accessibility of information technologies goes a long way in enhancing the success of ABC implementation in an organization. The study conducted by Askarany et al. (2007) revealed that, technological change in manufacturing practices were responsible for the failure of ABC implementation by some Australian plastics and chemical industries. This imply that, the application of IT play an important role in enhancing performance and organizational operations. For

instance, a company with a high level of IT accessibility across different channels of operations would likely finds it easy to transmit, combine, and process external data from customers and other stakeholders. It may also be effortless for such company to share data among various internal units (e.g., forecasting, opening accounts, customer relationship management and accounting) and to retrieve information from various databases for decision support (e.g., cost information, reporting tools). Furthermore, different units of organizations can work in unity (Barua et al., 2004). In other words, the accessibility of IT is an integration tool for organization which helps improve performance significantly. Previous researchers have dwelled into examining the impact of IT on organizational performance (Melville et al., 2004). It was unanimously reported that, organizations gain immensely with the integration of IT because extensive application of IT have significant implications on operations of organizations and these implications are therefore central to improving organizational performance. In line with the above arguments, this study hypothesized that:

H1: There is a positive relationship between IT and ABC implementation.

2.2. The Relationship between IT and Organizational Performance

Past studies have Delve excessively on the relationships between the application of information technologies and organizational performance. There have been a level of consensus among past researchers with regards to the importance of investing heavily on the application of different information technologies at different levels organizational operations. Past studies have observed that, there is a positive impact of technological investment on organizational performance (Devaraj and Kohli, 2003; James, 2013). For instance, Devaraj and Kohli (2000) found that, there is a positive effect of IT capital and labor on organizational performance. Consistently, the findings reported by Shaukat and Zafarullah (2009) demonstrated that, there is a positive relationship between technology and performance in the banking industry and manufacturing sectors. Similarly, Melville et al. (2004) found IT to be a valuable factor in enhancing organizational performance. Also the study conducted by Ajibolade (2013) revealed that the more the complexity of technologies such as the higher level of mechanization and automation the more the significance of its impact on organizational performance. In the light of this, the study proposed the following hypothesis;

H2: There is a positive relationship between IT and organizational performance.

2.3. The Relationship between ABC Implementation and Organization Performance

A sizable number of researchers mostly, from the western countries have examined the effect of implementing ABC on organizational performance. Most of these past studies unanimously revealed that, the implementation of ABC helps diminish the inaccuracy about the cost allotment and enhance organizational performance. Shields (1995) revealed from an empirical investigation conducted

in the U.S, demonstrated that, 75% of respondents said that the utilization of ABC brought about enhancement in financial performance, and just 25% disagree to that. This outcome was affirmed later by McGowan and Klammer (1997). More recently, studies have demonstrated that the utilization of ABC have significant importance on cost reduction and profitability analysis. Zaman (2009) affirmed that the implementation of ABC results in a better overall performance. Similarly, Elhamma and Fei (2013) examined the relationship between the implementation of ABC and the performance of Moroccan firms. The study found that the management accounting system in light of ABC strategy results in a superior performance for firms that have embraced it. Furthermore, a positive relationship exists between applying the ABC and the financial performance of companies (Hardan and Shatnawi, 2013). Therefore, this study hypothesized that:

H3: There is a positive relationship between ABC Implementation and Organizational Performance.

2.4. The Mediating Role of ABC Implementation on the Relationship between IT and Organization Performance

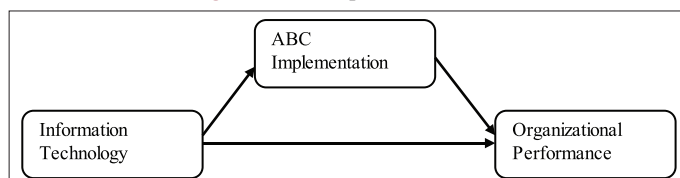
Implementation management accounting system such as ABC has the potential to provide managers with accurate information for setting realistic performance target, performance evaluation standards and receive feedback from its activities (Zaman, 2009; Ittner et al. 2002), which will in turn result in improved organizational performance (Zaman, 2009; Rasid et al., 2011). Previous researches have been conducted on the mediating role of management accounting system (MAS) between organizational factors and performance. For example, Rasid et al. (2011) investigated the mediating role of MAS between competition intensity, innovativeness and technological advancement and organizational performance in Malaysia and found that MAS mediates the relationships. Also, Elhamma and Fei (2013) who asserted that if the intensity of technological advancement is related to ABC and organizational performance, then, the indirect effect of the implementation of ABC on the relationship between IT advancement and organizational performance could be proposed. Thus, it is posited that:

H4: ABC Implementation positively mediates the relationship between IT and organizational performance.

2.5. Conceptual Framework

In line with the literature review and hypotheses presented above, a conceptual framework is proposed and presented in Figure 1. The conceptual framework shows the direct and the indirect relationship between IT, ABC implementation and organization performance.

Figure 1: Conceptual framework



3. METHODOLOGY

Using a survey research design, a self-administered questionnaire was e-mailed to 200 chief accountants of banks in the north of Iraq. The 162 questionnaires were returned which yielded 150 (75%) usable data. The unit of analysis in this study is organizational as the opinion of a chief accountant represent his/her bank. This study examined the function of IT though the practices and functionalities of IT in a conventional financial institution. Five items were adapted from previous studies (Zhu et al., 2004; Barua et al., 2004; Chapman and Kihn, 2009) It is believed that the availability and the accessibility and the advancement of IT enhance the implementation of sophisticated costing system such as ABC and improve organizational performance. Therefore, respondents in this study were required to indicate the extent to which they think their organization use information technologies. ABC implementation is measured in this study with 12 items adapted from Yi and Ruhana (2010), Yanren et al. (2008). In addition, the measurement of organizational performance were 8 items adapted from various sources such as; Zaman (2009), Ringim et al. (2012). Respondents are requested to rate their agreement or disagreement with the provided statements in the questionnaire on a five - point Likert type scale from 1 = "strongly disagree" to 5 = "strongly agree." Even though the items adapted in this study have been used in previous studies for testing similar variables, exploratory factor analysis is conducted in this study. As such, the items were submitted to the principle component analysis and the Varimax method was used for the rotation. As expected, three-factor solution were extracted. The factor loadings of the items are presented in Table 1 together with the acceptable scores of Cronbach's alpha.

4. FINDINGS

Regression analysis in SPSS Version 21 was used for testing the hypotheses proposed in this study. Meanwhile, before conducting the regression analysis, the necessary statistical assumptions such as ensuring the data is normally distributed, elimination of outliers and examining the absence of multicollinearity were altogether met. Following are the findings and discussions of the four hypotheses proposed in this study.

H1: There is a positive relationship between IT and ABC Implementation.

In testing the above hypothesis, the direct relationship between IT and ABC implementation is examined. Table 2 shows the result of the relationship. The result revealed that there is a significant relationship between IT and ABC Implementation ($B = 0.306$, $T = 3.910$, $P = 0.000$). The interpretation of the findings implied that H1 is accepted. This findings imply that, the more the use of IT among Iraqi banks, the better ABC can be implemented.

H2: There is a positive relationship between IT and organizational performance.

According to the proposed hypothesis, the relationship between IT and organizational performance was examined. The result of the

testing is presented in Table 2. The findings revealed that there is a significant relationship between IT and organizational performance (B = 0.388, T = 5.115, P = 0.000). The findings implied that, the use of IT have significant impact on organizational performance among Iraqi banks. Hence, an extensive application of IT among Iraqi banks will yield better improvements in their performances.

Table 1: Factor loadings of the research dimensions

Factors	1	2	3
Organizational performance (Cronbach's alpha: 0.889)			
Overall business performance	0.880		
New service development	0.852		
Efficient customer relationship management	0.822		
Internal managerial efficiency	0.822		
Excellent financial performance	0.808		
Increase in yearly profit	0.606		
Increase in number of performing loans	0.567		
Branch income	0.545		
ABC implementation (Cronbach's alpha: 0.819)			
Provides accurate information		0.916	
Enhance job effectiveness		0.885	
Positive impact on efficiency and waste reduction		0.860	
Positive impact on overall goal of the organization		0.852	
Positive impact on communication across sections of the organization		0.851	
Positive impact on innovations		0.844	
Positive impact on quality decision		0.815	
Provides accessible information		0.812	
Provides timeliness information		0.796	
Provides reliable information		0.788	
Makes cost management easier		0.720	
Provides positive impact on relationship across sections of the organization		0.696	
IT (Cronbach's alpha: 0.770)			
In our bank, we use institutional portal			0.822
In our bank, we use cost management systems			0.802
In our bank, we use customer relationship management systems			0.720
In our bank, we benefit from the functionalities of information technologies			0.594
In our bank, we use online workflow systems			0.590

Table 2: The result of the relationship

Hypothesis	Coefficient	T-value	Significant	Remark
H1: IT → ABC implementation	0.306	3.910	0.000	Supported
H2: IT → Organizational performance	0.388	5.115	0.000	Supported
H3: ABC implementation → Organizational performance	0.309	3.946	0.000	Supported

IT: Information technology, ABC: Activity-based costing

Table 3: Simultaneous regression of both it and ABC on organizational performance

Hypothesis	Coefficient	T-value	Significant
IT → Organizational performance	0.323	4.149	0.000
ABC implementation → Organizational performance	0.210	2.687	0.008

IT: Information technology, ABC: Activity-based costing

H3: There is a positive relationship between ABC Implementation and Organizational Performance.

This hypothesis is proposed to examine the relationship between ABC implementation and organizational performance. The hypothesis is examined and the findings is presented in Table 2. The result shows that, there is a significant relationship between ABC implementation and organizational performance (B = 0.309, T = 3.946, P = 0.000). Hence, the hypothesis is accepted. This implied that, the implementation of ABC as a strategic management accounting system would help improve organizational performance in Iraqi banks.

H4: ABC Implementation positively mediates the relationship between IT and organizational performance.

In line with the objective of this hypothesis, which is to test the mediating role of ABC implementation on the relationship between IT and organizational performance, the study adopts the analytical procedure outlined by Baron and Kenny (1986) which include three discrete test namely; regressing the mediator on the independent variable, regressing the dependent variable on the independent variable and regressing the dependent variable on both the independent variable and mediator. According to Baron and Kenny (1986) the mediating role is established through these three test. Hence the result of first revealed that there is a significant relationship between IT and ABC implementation (B = 0.306, T = 3.910, P = 0.000). Also, the result of the second step shows that there is a significant relationship between ABC implementation and organizational performance (B = 0.309, T = 3.946, P = 0.000). Finally, the result of the last test is conducted by regressing both the predictor variable (IT) and the mediator variable (ABC implementation) on the dependent variable (organizational performance). The result of the simultaneous regression of IT and ABC implementation is presented in Table 3. The result revealed that, ABC Implementation has a partial mediating role on the relationship between IT and organizational performance. On this basis, H4 is accepted. The interpretation of this finding is that, ABC implementation partially mediates the effect of IT in improving organizational performance.

5. CONCLUSIONS

The findings of this present study revealed that, the use of IT in Iraqi bank is significantly related to organizational performance,

in essence, the adoption of modern technologies such institutional websites, customer relationship management systems, online workflow systems and many other information technologies that are relevant in banks have significant implications in improving the performance of banks. The findings of this study in this regard is consistent with prior studies (such as; Zhu et al., 2004; Rasid et al., 2011). Also, this findings of this study demonstrated that, the adoption of ABC as a sophisticated cost management system has a significant impact on organizational performance. This findings is consistent with previous researchers in this realm (Zaman, 2009; Ittner et al., 2002). This imply that, the adoption of ABC in organizations offers various advantages which include timeliness access to accurate costing information and in essence reduce costing. This study demonstrated that, the adoption of ABC as cost management system has a direct influence on organizational performance in so many areas that is not limited to job effectiveness, efficiency and waste reduction, helping the organization to achieve their overall goal, improving communication across different department of the organization, hence making job easier for employees. In addition, the implementation of ABC can help organization improve their performance through innovations is cost management, helping managers to make quality and productive decision and making customer relationship management effective.

Theoretically, the findings of this study, validates the theoretical perspectives of the contingency theory, by empirically revealing the implication of using digital and sophisticated information technologies in the organization which is expected to facilitate the successful adoption of ABC. Also, the study revealed that the implementation of ABC implementation is a significant intervening variable that its successful implementation is capable of improving the performance of the organization (Elhamma and Fei, 2013). Finally, the practical implication of this study is that, the paper provides an insight to the importance of using IT among Iraqi banks as one of the important conditions that mitigate the implementation of ABC. Also, the study provides an implication of the importance of ABC as a strategic management tool in improving the current unimpressive performance of banks in Iraq.

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