

THE POSSIBILITY AND REQUIREMENTS TO MOVE FROM TRADITIONAL COSTING SYSTEM (TCS) TO ACTIVITY-BASED COSTING SYSTEM (ABC) IN PALESTINIAN PRIVATE HOSPITALS

Hasan Salem Hasan Naji
Naser Abdelkarim
Tariq Darabee
Rajeh Alawneh
Mahmoud Harasheh

ABSTRACT

The purpose of this study is to investigate the feasibility and requirements of transitioning from a traditional costing system (TCS) to an activity-based costing system (ABC) in Palestinian private hospitals (PPHs), by examining the differences between the TCS system and the ABC system, as well as the basic factors for ABC system adoption in PPHs. This study also investigates the significance of the ABC system, which gives the most precise cost information for calculating the cost of health care services in PPHs. The contingency theory represents a modest breakthrough in ABC system research. This research seeks to provide an in-depth understanding of ABC system adoption success through contingency considerations. The study employs the mediating variable (information technology readiness) because information technology influences the link between contingency factors and ABC system adoption. In this investigation, a quantitative method was applied. An electronically distributed questionnaire was used to collect primary data from six PPHs. The data analysis is based on 105 respondents. Furthermore, the Istishari Arab Hospital (IAH) provided primary data for the first half of 2022. The study's findings demonstrate the ABC system's potential to give more precise information regarding the costs of healthcare services. Furthermore, the study found that information technology preparedness mediates a favorable association between contingency factors and ABC system adoption among PPHs. As a result, this research sheds light on the behavioral and organizational aspects of contingency theory that are critical for PPHs to implement the ABC system.

Keywords: Traditional Costing System, Activity Based Costing System Adoption, Palestinian Private Hospitals, Contingency Theory, Information Technology Readiness

INTRODUCTION

Traditional Cost Systems (TCS) have been the target of criticism from a wide variety of industry specialists ever since the late 1980s. Such systems used inappropriate measures for allocating overhead costs, which led to distorted product costs as a result (Miller, 1985). This was one of the major disadvantages of these systems, as well as one of the most significant disadvantages (Cooper, 1987). TCS was developed in the early 1980s before the occurrence of the big changes in the business environment including the increase in global competition, better technology in manufacturing, deregulation, and lower information costs. All these factors have put more pressure on many organizations to implement more advanced costing systems to provide relevant information that will appropriately adapt to their business environments (Drucker, 1963). This caused a problem because TCS was developed in the early 1980s before the big changes took place in business environments (Al-Miri, 2007; Alshamlan, 2018; Ditkaew, 2019; Drury, 2021; Guilding, 2005; Johnson, 1987; Maiga, 2007; Albrishi, 2020). It is possible that TCS was not very successful in the new business contexts since the provided information was in general, not conducive or timely enough to corrective action. This is because the information was presented in retrospective aggregate form (Cooper, 1988; Johnson, 1987).

According to Kaplan and Johnson (1987), the ever-shifting environments in business produced heavy competition between organizations, which led to the development of a variety of strategies aimed at increasing the competitiveness of the companies in question. One example of this is that manufacturing organizations today create a vast assortment of customized products to more closely match their output to the target market's requirements (Kaplan, 1989). However, Hoque (2000) pointed out that this strategy might result in a large increase in overhead costs, which is especially important to consider in light of the need for a greater variety of products or services.

TCS was developed at a point in time when there wasn't much competition in the market, production processes were more straightforward, products had a lot of similarities, and a lot of efforts were placed on financial reporting and inventory valuation within accounting practices, it is possible that TCS Couldn't meet the needs of business needs at that time (Cooper, 1988, 1989, 1991). The fact that TCS was dependent on too simple assignment processes, which might lead to distorting cost information is the key weakness of these systems. In addition, TCS might have decreased the relevancy of the cost information that they create, which hindered the ability to make informed decisions within the context of today's current business environment. This is true now that businesses have to deal with a growing number of different relevant elements, such as the need for increased product diversification (Al-Omiri, 2007; Drury, 2005; Kaplan, 1998). Non-manufacturing organizations also face the same challenges as manufacturing companies and need to modify their cost management practices to remain competitive (Clarke, 2001). As stated by Clarke (2001), "Service companies face the same changing environment that has necessitated modification in cost management practices in manufacturing companies for them to remain competitive" (p. 5). Researchers in the field of management accounting have determined that there is a need for the development of cost practices and strategies that are more suitable for and applicable to the contexts in which organization works today. Robert Kaplan and Robin Cooper developed an Activity Based Costing system (ABC) in the 1980s to enhance the allocation of overhead costs to cost objects. ABC, in contrast to TCS, ABC assigns overhead costs to the different production and service cost pools based on either association with resource drivers or direct assignment. Since

ABC Functions by breaking down processes into activities and then using these activities to accumulate the overhead costs, based on indirect assignment TCS allocates overhead costs to the different production and services cost pools. As a result, ABC is reliant on volume cost drivers and also takes into consideration non-volume cost drivers, both of which may help make sure that overhead costs are allocated to cost objects more effectively (Mishra, 2001). According to Drury (2021), a cost pool refers to a location to which costs are assigned, while a cost driver refers to anything that influences the costs of activities. Babad (1993) defined a cost driver as an event associated with an activity that leads to the consumption of firms' resources. Many studies (Cagwin, 2002; Clarke, 2001; Mishra, 2001) have suggested that ABC can provide accurate cost information at the activity level and measure the actual amount of resources used to create a particular product or service, thereby assisting in reducing cost distortions. These studies emphasize the importance of identifying accurate cost drivers to ensure that costs are assigned correctly and help organizations make informed decisions based on reliable cost information. According to contingency theory, there is no optimal method for developing management accounting and control systems, and success is contingent on a variety of factors (Drazin, 1985).

In the meanwhile, researchers such as Innes (2000), Yanren, (2008), and Baird, (2007) have established that the adoption of ABC is dependent on the structural variables. Contingency factors are another name for these structural variables (Albrrishi, 2020; Jebreel, 2021; Brown, 2004). Literature is brimming with assertions that ABC is better than TCS. However, research on the role of contingency factors in ABC adoption from the perspective of decision-makers such as financial directors and accountants is less common. Thus, they are underrepresented in studies examining the impact of factors on ABC adoption (Abu Khashaba, 1999; James, 2013). Consistently, contingency theory has suggested that some contingency factors impact the adoption of ABC in organizations (Fei, 2010; Shield, 1995; Anderson, 1999).

PROBLEM STATEMENT

The pricing strategies of Palestinian private hospitals (PPHs) are based on market prices or subjective judgments rather than efforts to achieve price transparency through the development of proper processes and systems. This lack of transparency makes it difficult to communicate prices with healthcare stakeholders such as the Palestinian Ministry of Health (PMOH), military medical services, and insurance companies (Carroll, 2016). Healthcare organizations need to maintain accurate cost systems to sustain their operations, and they have begun investing in more precise cost accounting systems tailored to their specific needs (Lievens, 2003). TCSs are often used for external reporting as they are easier for stakeholders to understand. However, TCS does not provide accurate information about service prices to healthcare managers. It applies overhead arbitrarily, and it is equally applied to the cost of all services provided, which is inefficient. Overhead costs account for around half of all hospital expenses, and hospitals must manage both overhead and direct patient expenditures to control healthcare expenses (Al-Omiri, 2007; Kalman, 2015). To address this issue, PPHs can adopt the activity-based costing (ABC) system, which allocates overhead costs precisely and ensures fairness in allocating costs to activities. (Horngren, 2011).

SIGNIFICANCE OF THE STUDY

In Palestine, health services contribute as one of the main pillars of social services, and it is considered the most important development sector in the country despite the restrictions on Palestinian hospital systems by the Israeli occupation for many years (WHO, 2020), the PMOH sought to transfer medical cases to PPHs, considering their ability to receive medical cases which accounted for approximately 95% of cases of all types, this became as a result of the development of Palestine's health system (Sabah, 2019). TCS used by healthcare services all too often falls short in these areas. Meanwhile, adopting the ABC system (Javid, 2016) aims to revolutionize healthcare providers' cost accounting systems in such a way that hospitals will be able to keep up with market dynamics (Carroll, 2016). As a consequence of the recommendations of the previous studies (Mizaini, 2020; Abu Barham, 2021; Durgham, 2009), the study considering contingency factors, which help in the possibility of adopting ABC, can help in determining the costs of health services, rationalizing the decision-making process, and providing the necessary information, so contingency theory best describes the aspects of ABC adoption in PPH.

Consequently, this study is carried out to fill the knowledge gap between the two costing systems. More specifically, from the theoretical perspective, this study contributes to the existing literature by providing more empirical evidence, from one of the developing countries, From the practical perspective, the results of the study will help PPHs to adopt ABC for services due to that can play the main role in providing accurate information for managerial operating decisions and reflect that on profitability in hospitals.

LITERATURE REVIEW

DEFINITION OF THE ABC SYSTEM

According to Kaplan (1989), ABC "is a methodology that aims to gain a better understanding of the factors that drive demand for overhead and support resources based on the specific demands made by individual products". Garrison and Noreen (2020) describe ABC as a "costing method that identifies activities and assigns costs to products based on the number of activities required to produce them." This definition emphasizes the link between activities and costs, and highlights the fact that ABC is based on a cause-and-effect relationship between activities and the consumption of resources.

ABC CONCEPT

In the numerous researches on ABC, multiple terms are utilized, such that ABC is a method (Garrison, 2015), a methodology (Narong, 2009), an accounting system (Baxendale, 2001), or an accounting technique (Pandey, 2012). For this study, ABC is referred to as a system.

ABC is “a costing approach that assigns costs to specific activities and uses them to allocate costs to other cost objects” (Garrison, 2015). The process starts with identifying the resources required, followed by resource cost assignment to determine how much is required for each activity. Activities are then assigned an activity cost reflecting the activity drivers that affect how much an object uses an activity, with cost objectives representing the end product (Turney, 1996). ABC provides cost information to assist in decision-making and can impact both fixed and variable costs by allocating costs to each product separately (Narong, 2009). ABC is also seen as a tool for evaluating the cost and performance of activities, goods, and other cost objectives, and can protect an organization from financial difficulties due to inaccurate accounting costs (Tho, 2006; Baxendale, 2006; Turney, 1996; Krumwiede, 1997). By identifying unnecessary and inefficient activities, ABC helps organizations make strategic decisions and cut operational costs (Pandey, 2012; Chea, 2011).

DESIGN OF THE ABC SYSTEM

Gurses (1999), explains that the ABC system includes a two-stage allocation process, with a comparison between ABC and TCS systems presented first. The second stage of the ABC system involves using various allocation bases, such as several times handled and set-up hours, whereas the TCS system only uses one of three common allocation bases. It is suggested that the accuracy of product costs calculated using ABC is higher than those calculated using TCS (Kaplan, 1988; Innes, 1990; Turney, 1996; Krumwiede, 1997).

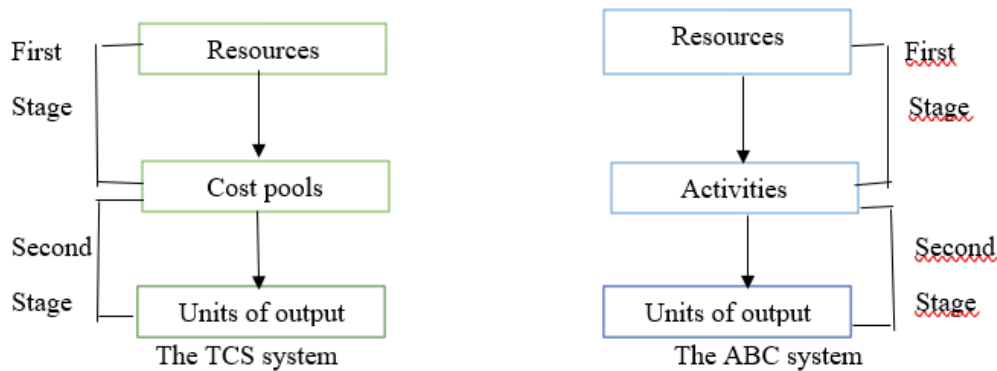


Figure 2.5: A comparison between TCS & ABC systems.

Source: Cooper (1992: p.9-10)

Cooper (1992) outlines a four-step process for the successful implementation of the ABC system, which can be simplified into a two-stage process. The first stage involves assigning all overhead costs to activity centers based on the driver of the resources. This is achieved using a cost hierarchy technique that categorizes overhead expenses into four groups. The second stage involves assigning activity costs to outputs. (Cooper, 1991; Horngren, 2015; Garrison, 2015) as shown in the figure below.

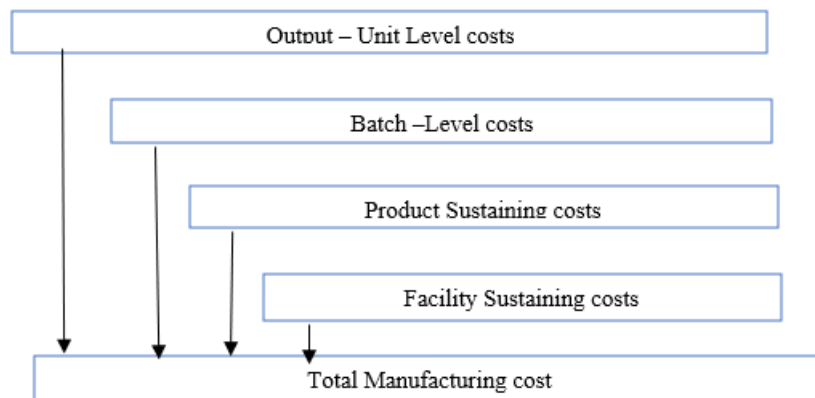


Figure 2.6: Manufacturing cost hierarchy

Source: Horngren (2015: p.290-291)

The figure demonstrates the four cost categories of manufacturing: unit-level, batch-level, product-sustaining, and facility-sustaining activities. Unit-level costs are directly related to each unit of product or service, while batch-level costs are related to a group of product units. Product-sustaining costs are allocated to specific products or services while facility-sustaining costs support the organization as a whole. Facility-sustaining activities are not related to product attributes, and therefore should not be considered product-related (Cooper, 1991; Adler, 1999).

In the second stage of ABC, overhead costs are allocated to products based on their demand for activities during production, according to Cooper (1988). To accomplish this, a variety of second-stage bases are used to allocate costs to products, including those that trace inputs that vary directly with the number of items produced and those that do not. Compared to TCS, ABC systems typically employ a greater number and diversity of second-stage cost drivers (Cooper, 1988).

The ABC system involves a two-stage allocation process that assesses the costs of activities within an organization and then allocates those costs to products based on their consumption. The system assumes that only the performance of activities uses resources and that outputs are produced from resources by performing activities (Innes, 1993). Despite these strong assumptions, ABC is regarded as a significant improvement over traditional cost systems and provides managers with valuable knowledge for making better operational decisions (Mishra, 2001). Time-based depreciation may be added to improve the accuracy of the system. The design of the ABC system involves ten components that categorize a business's actions to calculate each activity cost and determine the cost of the item based on the use of activities (Gunasekaran, 1999).

THE PALESTINIAN PRIVATE HOSPITALS (PPHs)

In 2021, the Ministry of Health (MOH) recorded the total number of hospitals as having reached 89 in Palestine, of which 54 operate in the West Bank, making up about 60% of total hospitals (Health., 2021). Other than ministry health hospitals, four major health care providers operate in Palestine: nongovernmental organizations (NGOs), the private sector, Military Medical Services (MMS), and the United Nations Relief and Works Agency (UNRWA), which has 60 hospitals in Palestine at the end of 2021 (Health., 2021), as shown in the figure below.

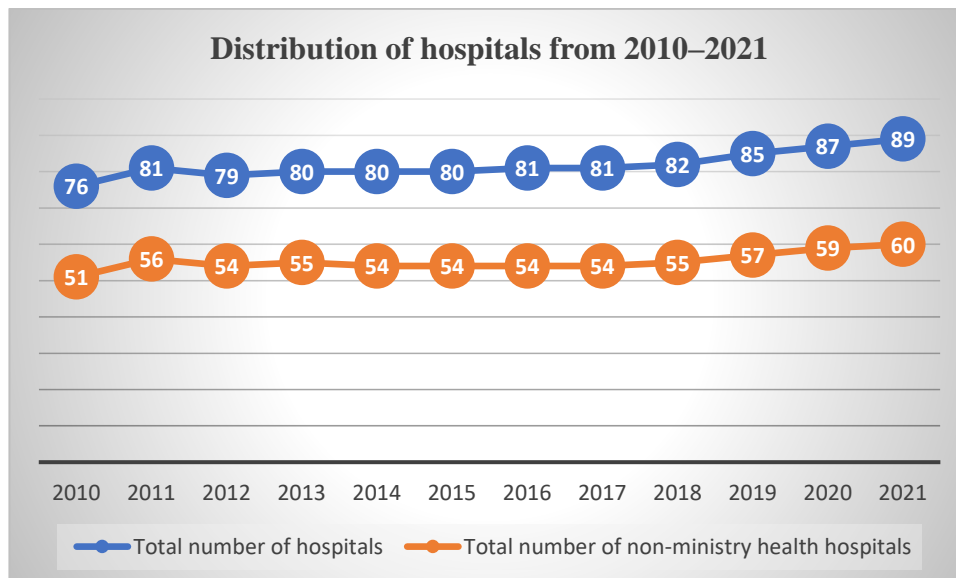


Figure 2.8: Distribution of hospitals from 2010–2021.

Source:(Health., 2021).

The private sector is the main provider of tertiary care in Palestine, with 19 private hospitals in operation as of 2021 (Health, 2021). In the pre-2000 period, the distribution of hospitals in the north of the West Bank (Palestinian-occupied territory) was as follows: Nablus had only two private hospitals (Etihad and Saint Luke's), and their market structure was recognized as a duopoly. Meanwhile, there were no private hospitals in Tulkarem or Qalqelia. After 2000, two additional hospitals were built in Nablus (the Nablus specialized hospital and the Arab specialized hospital) with an oligopoly market structure, and in Jenin, a new hospital was constructed (the Al-Razi hospital), which had a market structure classified as a duopoly. Furthermore, two hospitals were built in Tulkarem, but as of now, there are still no hospitals in Qalqelia (Ekmeil, 2020).

CONTINGENCY THEORY

The contingency theory, developed by Fred Fielder in 1964, emphasizes the importance of the organization's characteristics and situational factors in understanding leadership and organizational behavior. It suggests that various conditional factors can impact the relationships between variables, making it a useful theoretical framework for research on management control systems and management accounting. The theory has been applied in various fields such as operations management and human resource management. Success in developing a management accounting and control system is dependent on contingency factors, and there is no one-size-fits-all approach (Dent, 1990; Otley, 2016; Fisher, 1995; Hall, 2016; Sousa, 2008; Flynn, 2010).

The ADOPTION FACTORS OF THE ABC SYSTEM

The TCS has fewer cost pools and cost drivers, which means that prices for products and activities are often totally incorrect (Cooper, 1998). On the other hand, Wang (2004) stated that the ABC offers a better way for gathering and analyzing cost information. The ABC systems, which were designed by several different accounting and consulting organizations, have recently seen widespread adoption from a wide range of organizations.

CONTINGENCY THEORY TO ADOPTION IN ABC

ABC was a new costing methodology that was developed at the end of the 1980s as a replacement for TCS. It was designed to deliver more accurate cost information than the traditional techniques. Since 1990, the study of the elements that influence the adoption of ABC has been using Contingency theory. This was caused by ABC's introduction, which promoted adjustments to the costing systems utilized by international organizations (Kongchan, 2013). The current management accounting methods have evolved to suit the situations that are being faced by organizations (Donaldson, 2006). The shifts in practice are referred to as contingency factors, and they have been influenced by factors that are both contextual and organizational (Chenhall, 1986). As a result, researchers rely on this theoretical framework to understand the causes of contingency factors on management accounting methods as well as their impacts (Bruggeman, 1995; Otley, 1980).

As researchers attempt to discover and explain the various relationships that exist between organizational, environmental, and technological factors, one of the primary techniques that are being used in the design of control systems is the contingency theory (Dent, 1990). Add to that, this hypothesis has been placed to the test to investigate the connections between a variety of contingency factors and ABC adoption (Bjørnenak, 1997; Van Nguyen, 1997; Krumwiede, 1998; Malmi, 1999; Cagwin, 2002; Brown, 2004; Schoute, 2004; Taba, 2005; Khalid, 2005; Durgham, 2007; Abusalama, 2008; Majid, 2008; Aldukhil, 2012; Nassar, 2013; Kongchan, 2013; Reynolds, 2013; Elagili, 2015; Jusoh, 2015; Madwe, 2017; Martin, 2017; Al-Nuaimi, 2018; Aljabr, 2020; Albrishi, 2020; Alshamlan, 2021). Appendix A summarizes the studies of ABC adoption that have used different contingency theory methods.

TCS DEFICIENCIES

In the 1980s, concerns were expressed about the drawbacks of TCS, as pointed out by Cooper (1991). Kaplan and Cooper (1987) contended that the fundamental weaknesses of TCS were attributed to the adoption of volume-based criteria in the second stage of cost allocation, which involved the distribution of costs from cost centers to products or services. They proposed that this methodology may have been appropriate previously when direct labor was the primary value-adding operation in material conversion.

Manufacturing technology advancements in the mid-1980s led to distorted product costs in TCS, which was designed in the 1920s for labor-based manufacturing (Johnson, 1987; Kidd, 1994). TCS allocated most manufacturing overheads to direct labor, resulting in inaccurate product costs in mass-production environments. An alternative approach is variable or marginal costing, which allocates variable manufacturing costs to products and fixed costs to the period incurred (Johnson, 1987). Marginal costing includes only direct labor, variable manufacturing overhead, and direct material costs in the product unit's cost. Drury (2021) presents an illustration of how marginal costing systems deal with these expenses.

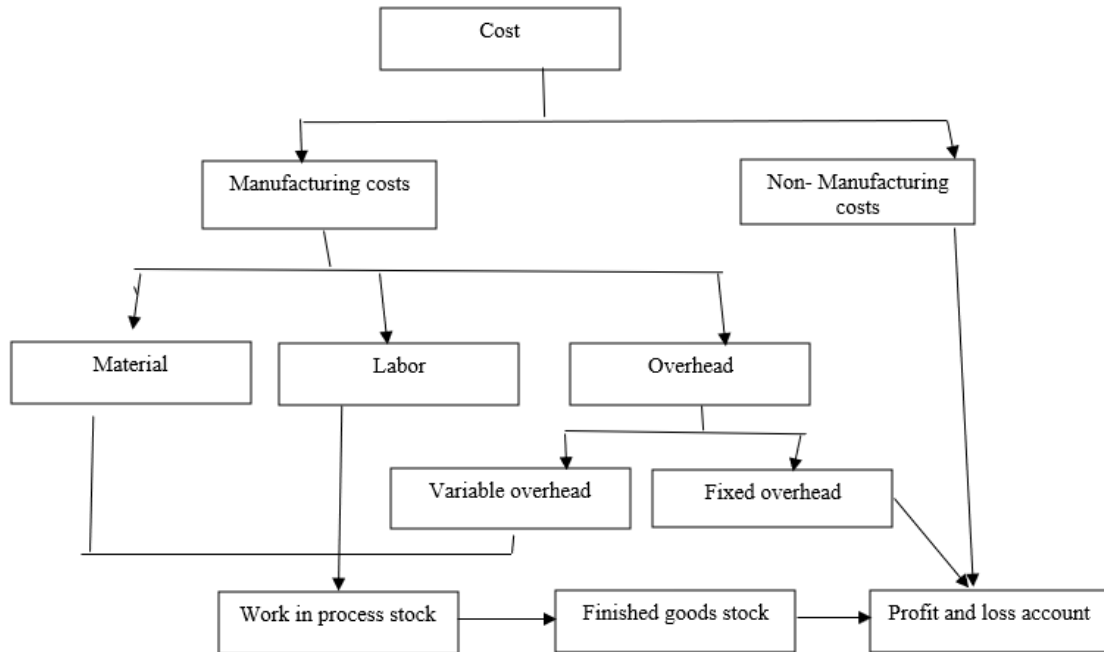


Figure 2.3: Variable costing system

Source: Drury (2021: p.157).

ABC IN HEALTHCARE

Healthcare systems strive to improve service quality and efficiency while minimizing costs. Auerbach (2011) identified factors contributing to rising health costs, such as population aging, technological complexity, and insurance coverage expansion. Hospital costs are rising due to the increased need for specialized personnel and equipment. Hill (2000) provided a historical perspective on the adoption of costing systems in the U.S. hospital sector. Healthcare organizations worldwide have adopted the diagnosis-related groups (DRGs) reimbursement system to fund hospital activities. Cannavacciuolo (2015) reported on how an Italian hospital used Activity-Based Costing (ABC) to determine costs for Diagnostic-Therapeutic Pathways (DTPs). ABC can deliver process improvement, improved quality and service, and detailed cost data that support reporting, and contract modeling. However, factors that facilitate ABC adoption in hospitals are yet to be investigated. Cardinals (2004) conducted a survey to identify factors explaining further cost system development in a healthcare context. The survey revealed that typical features of the healthcare sector seem to explain variations in cost system development among hospitals.

HYPOTHESES DEVELOPMENT AND CONCEPTUAL MODEL

Several previous studies have explored the relationship between contingency factors and adoption of ABC in various industries (Van Nguyen, 1997; Bjørnenak, 1997; Krumwiede, 1998; Malmi, 1999; Cagwin, 2002; Brown, 2004; Schoute, 2004; Taba, 2005; Khalid, 2005; Durgham, 2007; Abusalama, 2008; Majid, 2008; Aldukhil, 2012; Nassar, 2013; Kongchan, 2013; Reynolds, 2013; Elagili, 2015; Jusoh, 2015; Madwe, 2017; Martin, 2017; Al-Nuaimi, 2018; Aljabr, 2020; Albrishi, 2020; Alshamlan, 2021). However, these studies have produced conflicting findings, possibly due to the lack of a standardized measurement for ABC adoption in the healthcare industry. To address this gap, this study proposes a conceptual model that explains the relationships between five contingency factors (i.e., top management support, training and qualification, service diversity and complexity, overhead costs and cost structure, and information technology readiness) and ABC adoption in PPHs.

Following the approach of previous studies (Brown, 2004; Jusoh, 2015), ABC adoption is conceptualized as the dependent variable, while the five contingency factors are the independent variables. The study also incorporates a moderator variable (i.e., information technology readiness) to account for its potential influence on the strength and direction of the relationships between the contingency factors and ABC adoption.

The conceptual model of the study signifies the importance of those factors in the adoption of ABC in the PPHs as presented in Figure 1.1.

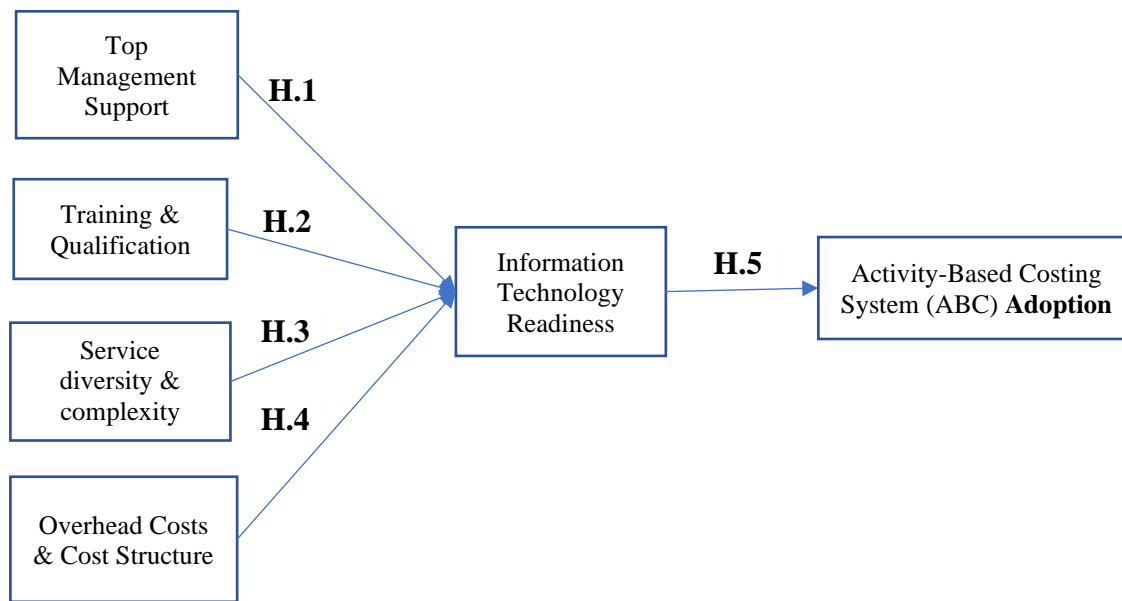


Figure 1.1: Conceptual Model of Study

Source: (Brown, 2004; Alshamlan, 2021)

Accordingly, and as shown in the conceptual model of the study, the following hypotheses are developed to be tested:

- **Main Hypothesis:** The adoption of ABC is necessary for PPHs to improve cost management, decision-making, and operational efficiency compared to TCS.

- **Sub Hypotheses:**

H.1: Top management support and Information Technology Readiness are positively associated with ABC adoption among PPHs.

H.2: Training and qualification and Information Technology Readiness are positively associated with ABC adoption among PPHs.

H.3: Service diversity & and complexity and Information Technology Readiness are positively associated with ABC adoption among PPHs.

H.4: Overhead costs & cost structure and Information Technology Readiness are positively associated with ABC adoption among PPHs

H.5: Information Technology Readiness is positively associated with ABC adoption among PPHs.

RESEARCH METHODOLOGY

RRESEARCH APPROACH

The current investigation employs a quantitative research design and necessitates a meticulous methodology to identify the relevant phenomena regarding the adoption of ABC among PPHs. Consequently, an analytical descriptive approach is employed to carry out the research. The study gathers primary data on different variables through a fully structured questionnaire distributed to a sample population. Additionally, a case study is utilized in the research to showcase the implementation of the ABC system in hospital settings.

POPULATION AND SAMPLE

The study population consists of 19 PPHs, according to the information published by MOH (Health, 2021). The study sample will include 6 private hospitals (Istishari Arab Hospital, Ibn Sina Specialized Hospital, Specialized Arab Hospital, Nablus Speciality Hospital, HClinic Hospital, Al-Israa Specialized Hospital), The sample was selected based on a study by Abu Mogli (2008) the selection of private hospitals that have 40 beds or more, which represented (32%) of the study population. The survey was distributed to the chief executive officer (CEO), chief financial officer (CFO), heads of department, and accountants. Furthermore, IAH was chosen as a case study for the application of the ABC system in this study.

CONCLUSIONS

- 1) Despite top management's acknowledgment of ABC in PPHs, the respondents' perception is that they did not receive sufficient active support and resources from top management to implement the ABC system. As a result, the level of support provided by top management in PPHs is considered moderate.
- 2) According to the respondents' perception, while PPHs have qualified staff for adopting the ABC system, their level of training and qualification is not adequately applied to ensure successful adoption. Without proper training on the objectives, processes, and benefits of ABC adoption, the involved parties may not work towards a unified goal. Consequently, the level of training & qualification in PPHs is regarded as moderate.
- 3) The diversity and complexity of services in PPHs are high because of the diversity and complexity of health services provided for patients; therefore, the ABC system needs to be adopted by PPHs. The perception of the respondents is that adopting the ABC system makes it easier for treatment and calculating health service costs; by PPHs, they believe that there should be a cost department for studying health services; therefore, the level of service diversity & complexity in PPHs are high.
- 4) Due to the overhead costs associated with the cost structure of health services for patients, PPHs have needed to adopt the ABC system. The perception of the respondents is that adopting the ABC system requires an experienced staff and cost department to study the health services for patients; therefore, the level of overhead costs & cost structure in PPHs is moderate.
- 5) Information technology represents the backbone for adopting the ABC system among PPHs. The perception of the respondents was that users knew how important IT was to adopt the ABC system but had trouble supporting the IT needed for full adoption of the ABC system among PPHs; therefore, the level of information technology readiness in PPHs is moderate.

REFERENCES

- Abu Khashaba, A. H. (1999). *Study and evaluate the Activity Based Costing (ABC) system with the possibility of the application in the Kingdom of Saudi Arabia*. Egyptian Journal for Commercial Studies, 23 (1): 287- 343.
- Abu Mogli, A. (2008). *The Impact of the Activity Based Costing System on Profit Maximization: An Applied Study on Private Hospitals in Amman Governance*. Master's Thesis, Middle East University, Amman, Jordan.
- Albright, S. S. (2020). *Conceptual Framework of the Environmental Factors and Technological Factors Affecting the Adoption of the (ABC) system in Jordan*. International Journal Of All Research Writings, 2(5), 100-106.
- Al-Omiri, M. &. (2007). *Organizational and behavioral factors influencing the adoption and success of ABC in the UK*. Cost Management, 21(6), 38.
- Alshamlan, H. M. (2018). *Do the costing systems in Saudi Arabian hospitals need to be modified?* International Journal of Accounting and Financial Reporting, 8 (1), 359–379.
- Anderson, S. &. (1999). *The Impact of Contextual and Process Factors on the Evaluation of Activity-Based Costing Systems*. Accounting, Organizations and Society, vol. 24, pp. 525-59.
- Auerbach, D. a. (2011). *A Decade of Health Care Cost Growth Has Wiped out Real Income Gains for an Average US Family*. Health Affairs, 30, 1630-1636. Retrieved from <http://dx.doi.org/10.1377/hlthaff.2011.0585>
- Babad, Y. M. (1993). *Cost driver optimization in activity-based costing*. The Accounting Review, 68(3): 563-575.
- Baird, K. H. (2007). *The success of Activity Management Practices: The Influence of Organizational and Cultural Factors*. Accounting and Finance, vol. 47, no. 1, pp. 47-67.
- Bjørnenak, T. (1997). *Diffusion and accounting: the case of ABC in Norway*. , Management Accounting Research, 8 (1), 3–17.
- Brown, D. A. (2004). *Technological and organizational influences on the adoption of activity-based costing in Australia*. Accounting and Finance, 44 (3), 329–356.
- Bruggeman, W. &. (1995). *The impact of technological change on management accounting*. Management Accounting Research, 6(3), 241-252.
- Cagwin, D. &. (2002). *The Association Between Activity-Based Costing and Improvement in Financial Performance*. Management Accounting Research, vol. 13, pp. 1-39.
- Cannavacciuolo, L. I. (2015). *An activity-based costing approach for detecting inefficiencies of healthcare processes*. Business Process Management Journal, 21(1): 55–79.
- Carroll, N. &. (2016). *The growing importance of cost accounting for hospitals*. Journal of health care finance, 43(2),172–185.
- Chenhall, R. H. (1986). *The impact of structure, environment, and interdependence on the perceived usefulness of management accounting systems*. Accounting Review, 61, 16-35.
- Clarke, P. A. (2001). *Activity-based costing in the non-manufacturing sector in Ireland: a preliminary investigation*. Irish Journal of Management, 22 (2), 1–18.
- Cooper, R. A. (1987). *How Cost Accounting Systematically Distorts Product Costs*. Boston: Harvard Business School.
- Cooper, R. A. (1988). *Measure Costs Right: Make the Right Decisions*. Harvard Business Review, 96-103.
- Cooper, R. A. (1991). *Profit Priorities from Activity-Based Costing*. Harvard Business Review, pp. 130-135.
- Dent, J. F. (1990). *Strategy, organization, and control: some possibilities for accounting*. Accounting, Organizations and Society, 15 (1–2), 3–25.
- Ditkaew, K. a. (2019). *Using structure equation model for evaluating the impact of activity-based costing towards strategic management innovation and performance of firms in industrial estate authority of Thailand*. Asian Administration and Management Review, 2 (1), 110–121.
- Drazin, R. a. (1985). *Alternative forms of fit in contingency theory*. Administrative Science Quarterly, 30 (4), 514–539.
- Drucker, P. F. (1963). *Managing for business effectiveness*. Boston, MA: Harvard University. Graduate school of business administration.
- Drury, C. .. (2021). *Management and Cost Accounting, 11th Edition*. Annabel Ainscow.

- Drury, C. A. (2005). *Explicating the design of overhead absorption procedures in UK organizations*. The British Accounting Review, 37 (1), 47–84.
- El-dalahmeh, S. (2020). *The Effect of Adopting Activity-Based Costing (ABC) on Maximizing Profitability in Jordanian Private Health Care Sector*. Asian Journal of Finance & Accounting, Vol. 12, No. 1 Pages 151-160.
- Fei, Z. Y. (2010). *Factors influencing activity-based costing success: A research framework*. International Journal of Trade, Economics and Finance, 1(2), 144-150.
- Fisher, J. (1995). *Contingency-based research on management control systems: categorization*. Journal of Accounting Literature, 14, 24–53.
- Flynn, B. B. (2010). *The impact of supply chain integration on performance: a contingency and configuration approach*. Journal of Operations Management, 28 (1), 58–71.
- Garrison, R. N. (2015). *Managerial Accounting (15th edition)*. New York: McGraw-Hill Irwin.
- Guiliding, C. D. (2005). *An empirical investigation of the importance of cost-plus pricing*. Managerial Auditing Journal, 20 (2), 125–137.
- Gurses, A. (1999). *An Activity-Based Costing and Theory of Constraints Model for product-mix decisions (Dissertation)*. Virginia Polytechnic Institute and State University, Virginia: USA.
- Hall, M. (2016). *Realizing the richness of psychology theory in contingency-based management accounting research*. Management Accounting Research, 31 (June), 63–74.
- Hoque, Z. (2000). *Just-in-time production, automation, cost allocation practices and importance of cost information: an empirical investigation in New Zealand-based manufacturing organizations*. The British Accounting Review, 32 (2), 133–159.
- Horngren C., D. T. (2011). *Cost Accounting: A Managerial Emphasis*. 14th ed, Englewood Cliffs, Prentice-Hall.
- Innes, J. A. (1990). *Activity Based Costing Research: A Review with Case Studies*. Chartered Institute of Management Accountants, 28-29.
- Innes, J. M. (2000). *Activity-Based Costing in the U.K.'s Largest Companies: A Comparison of 1994 and 1999 Survey Results*. Management Accounting Research, vol. 11, pp. 349-62.
- James, P. C. (2013). *An analysis of the factors influencing the adoption of activity-based costing (ABC) in the financial sector in Jamaica*. International Journal of Business and Social Research (IJBSR), 3(7), 8-18.
- Jebreel, M. N. (2021). *THE IMPACT OF TRAINING AND INFORMATION TECHNOLOGY ON (ABC) ADOPTION AMONG JORDANIAN SERVICES COMPANIES*. Journal of Legal, Ethical and Regulatory Issues, 24, 1-8.
- Johnson, H. A. (1987). *Relevance Lost: The Rise and Fall of Management Accounting*. Boston: Harvard Business School.
- Jusoh, R. &. (2015). *Technological and environmental factors influence the diffusion of activity-based costing in Iran*. Tékhne, 13(2), 95-109.
- Kalman, N. H. (2015). *Hospital overhead costs: the neglected driver of health care spending?* Journal of Health Care Finance, 41(4).
- Kaplan, R. (1989). *Management accounting for advanced technological environments*. Science, 245 (4920), 819–823.
- Kaplan, R. S. (1998). *Advanced Management Accounting*. Third Edition, Prentice Hall International, INC.
- Khalid, A. (2005). *Activity-based costing in Saudi Arabia's largest 100 firms in 2003*. Journal of American Academy of Business, 2 (March), 285–292.
- Kidd, P. (1994). *Agile Manufacturing-Forging New Frontiers*. Addison-Wesley Publishing Company.
- Kongchan, P. (2013). *Factors influencing the implementation of activity-based costing Thai companies. (Doctoral dissertation)*. RMIT University, Australia, Retrieved from <https://researchbank.rmit.edu.au/view/rmit:160618/Kongchan.pdf>.
- Krumwiede. (1998). *The Implementation Stages of Activity Based Costing and the Impact of Contextual and Organizational Factors*. Journal of Management Research, vol. 10, pp. 239-77.
- Lievens, Y. V. (2003). *Activity-based costing: a practical model for cost calculation in radiotherapy*. International Journal of Radiation Oncology* Biology* Physics., 57(2), 522-535.
- Maiga, A. &. (2007). *Activity-based cost management, operational and financial performance: A structural equation modeling approach*. Advances in Management Accounting, 16: 217-260.
- Miller, J. (1985). *The hidden factory—cutting the explosive growth of overhead costs requires mastery of more than just what happens on the shop floor*. Harvard Business Review, 142 150.
- Mishra, B. A. (2001). *Cost-system choice and incentives – Traditional Vs Activity-based costing*. Journal of Accounting Research, Vol. 39, No.3. pp: 619- 641.
- Organization, W. H. (2020). *Health conditions in the occupied Palestinian territory, including east Jerusalem, and the occupied Syrian Golan (No .A73/15)*. https://apps.who.int/gb/ebwha/pdf_files/WHA73/A73_15-en.pdf.
- Otley, D. (1980). *The contingency theory of management accounting: Achievement and prognosis*. Accounting Organizations and Society, 5(4), 413-428.
- Otley, D. (2016). *The contingency theory of management accounting and control: 1980-2014*. Management Accounting Research, 31, 45–62.
- Schoute, M. (2004). *Determinants of the adoption and use of activity-based costing*. In: Proceedings of the American Accounting Association Management Accounting Section Meeting. Retrieved from https://sbe.vu.nl/nl/Images/research_memoranda_4_tcm257-11185.
- Shields, M. (1995). *An Empirical Analysis of Firms' Implementation Experiences with Activity-Based Costing*. JMAR, vol. 7, pp. 148-66.
- Sousa, R. A. (2008). *Contingency research in operations management practices*. Journal of Operations Management, 26 (6), 697–713.
- Taba, L. M. (2005). *Measuring the successful implementation of Activity Based costing (ABC) in the South African Post Office*. Doctoral dissertation.
- Tho, L. Baxendale, (2006). *Activity-based costing and management: Building competitive strategies*. In Accounting in a Changing Environment: Issues and Implications for Management Accounting and Taxation, 27-38.

- Turney, B. (1996). *Activity-based Costing: The Performance Breakthrough*. London: Chartered Institutes of Management Accounting.
- Van Nguyen, H. a. (1997). *An empirical investigation of adoption issues relating to activity-based costing*. *Asian Review of Accounting*, 5 (1), 1–18
- Wang, Y. W. (2004). *The Relationship between Succession Issues and Business Performance: Evidence from UK Family Smes*. *International Journal of Entrepreneurial Behaviour & Research*, pp 59- 84.
- Yanren, X. W. (2008). *Activity-based costing popularity in China*. *Cost Management*, 22(3), 40-48.

Hasan Salem Hasan Naji
Arab American University
Email: h.naji1@student.aaup.edu

Naser Abdelkarim
Arab American University (AAUP)
Email: Naser.abdelkarim@aaup.edu

Tariq Darabee
Al-Quds University
Email: t_darabea@staff.alquds.edu

Rajeh Alawneh
Arab American University (AAUP)
Email: rajeh.alawneh@aaup.edu

Mahmoud Harasheh
Istishari Arab Hospital (IAH)
Email: mahmoud.harasheh@iah.ps

Appendix

Table 3.2: the results of internal consistency validity of Contingency Factors

Paragraphs	Pearson correlation	Sig	Paragraphs	Pearson correlation	Sig
TMS1	0.772**	0.000	TMS4	0.596**	0.000
TMS2	0.804**	0.000	TMS5	0.818**	0.000
TMS3	0.769**	0.000	TMS6	0.693**	0.000
TQ1	0.556**	0.000	TQ4	0.738**	0.000
TQ2	0.591**	0.000	TQ5	0.751**	0.000
TQ3	0.576**	0.000	TQ6	0.716**	0.000
ITR1	0.693**	0.000	ITR4	0.757**	0.000
ITR2	0.732**	0.000	ITR5	0.543**	0.000
ITR3	0.676**	0.000	ITR6	0.674**	0.000
SDC1	0.758**	0.000	SDC4	0.800**	0.000
SDC2	0.721**	0.000	SDC5	0.530**	0.000
SDC3	0.801**	0.000	SDC6	0.554**	0.000
OCCS1	0.818**	0.000	OCCS4	0.874**	0.000
OCCS2	0.763**	0.000	OCCS5	0.618**	0.000
OCCS3	0.542**	0.000	OCCS6	0.893**	0.000

Table 3.3: the results of internal consistency validity of ABC adoption

Paragraphs	Pearson correlation	Sig	Paragraphs	Pearson correlation	Sig
ABC1	0.673**	0.000	ABC5	0.761**	0.000
ABC2	0.681**	0.000	ABC6	0.761**	0.000
ABC3	0.622**	0.000	ABC7	0.651**	0.000
ABC4	0.670**	0.000	ABC8	0.661**	0.000

Table 3.4: Cronbach Alpha Coefficients

Construct	# Of Items	Cronbach Alpha
Contingency Factors	30	0.882
Top management support	6	0.838
Training & Qualification	6	0.736
Service diversity & and complexity	6	0.736
Overhead costs & and cost structure	6	0.848
Information Technology Readiness	6	0765
ABC Adoption	8	0.838

Table 4.9: Correlation Matrix

	TMS	TQ	SDC	OCCS	IT	ABC
TMS	1					
TQ	0.538**	1				
SDC	0.101	0.116	1			
OCCS	0.335**	0.163	0.375**	1		
IT	0.247*	0.213*	0.364**	0.717**	1	
ABC	0.163	0.107	0.439**	0.761**	0.856**	1

TMS: Top management support; TQ: Training & Qualification;

SDC: Service diversity & complexity; OCCS: Overhead costs & cost structure;

ITR: Information Technology Readiness; ABC: ABC adoption.

** Correlation is significant at the 0.01 level.

Variables and Dimensions	Reference
Variable 1: Top management support (TMS)	
TMS1: Hospital Management is interested in forming a team to adopt ABC.	
TMS2: Hospital Management has adequate information about ABC.	Liu (2007) Krumwiede (1998) Taba (2005) Brown (2004) Durgham (2007)
TMS3: Hospital Management sees that ABC output is better than that from TCS.	Abusalama (2008)
TMS4: Hospital Management has the Scientific and Practical Qualifications that have expertise in Advanced Accounting Systems.	Intakhan (2014)
TMS5: Top Management employs time and effort to adopt ABC.	Al-Nuaimi (2018)
TMS6: Top Management provides the Resources needed for ABC Adoption.	
Variable 2: Training & Qualification (TQ)	
TQ1: Accountants acquire Professional Training Certificates.	
TQ2: Hospital Management has formed a team for ABC Training.	Liu (2007) Krumwiede (1998) Taba (2005) Brown (2004) Durham (2007)
TQ3: Employees commit to training regularly.	Abusalama (2008)
TQ4: The hospital has Professional Experienced Employees to Adopt ABC.	Intakhan (2014)
TQ5: Employees enroll in ABC Training.	Al-Nuaimi (2018)
TQ6: The hospital provides enough training for ABC Design and Objectives.	
Variable 3: Information Technology (IT)	
IT1: The Hospital has an Electronic Accounting System that provides the necessary and Detailed data for ABC Adoption.	
IT2: The Current Accounting Systems support selecting Indirect Costs.	Liu (2007) Krumwiede (1998) Taba (2005) Brown (2004) Durham (2007)
IT3: The Current Accounting Systems support selecting Cost Drivers for each Service.	Abusalama (2008)
IT4: The Current Accounting Systems support Cost Pool data collection for each service.	Intakhan (2014)
IT5: The Current Accounting Systems support selecting Activities for each Service.	Al-Nuaimi (2018)
IT6: The Hospital made Information Technology Resources available for ABC Adoption.	
Variable 4: Service diversity & complexity (SDC)	
SDC1: TCS's failure in accurately selecting each service cost promotes ABC Adoption.	Liu (2007) Krumwiede (1998) Taba (2005) Brown (2004) Durham (2007)
SDC2: Service Diversity by Quantity requires ABC Adoption.	Abusalama (2008)
SDC3: Service Diversity by Type requires ABC Adoption.	Intakhan (2014)
SDC4: Service Complexity and Advancement requires ABC Adoption.	Al-Nuaimi (2018)
SDC5: The Provided Health Services are analyzed from time to time to get rid of the Services that don't benefit Patients.	
SDC6: The Hospital has a specialized Department to Determine the Cost of Services Provided for Patients.	
Variable 5: Overhead costs & and cost structure (OCS)	
OCS1: Cost Accounting Department study and analyze hospital activities to determine factors that affect Costs.	Liu (2007) Krumwiede (1998) Taba (2005) Brown (2004)
OCS2: Accountants can allocate direct costs for indirect costs for health services.	Brown (2004)

Study Of Contingency Factors Variables and ABC Adoption

Variables and Dimensions	Reference
OCS3: Accurate Cost Driver can be selected for each Service provided.	Durgham (2007)
OCS4: ABC helps in Overhead cost allocation.	
OCS5: ABC Adoption saves time and effort needed to perform activities and therefore reduces costs.	Abusalama (2008) Intakhan (2014)
OCS6: ABC helps better and accurate Service Pricing.	Al-Nuaimi (2018)
<hr/>	
Variable 6: Activity-Based Costing System (ABC) Adoption	
ABC1: The Hospital has a plan for ABC Adoption.	Liu (2007)
ABC2: ABC Adoption Objectives are clear for all Participants.	Krumwiede (1998) Taba (2005)
ABC3: The Hospital has the infrastructure and resources necessary for ABC Adoption.	Brown (2004)
ABC 4: The ABC Team has the qualifications and skill set necessary to adopt ABC.	Durgham (2007)
ABC5: ABC Adoption has full and continuous Top Management Support.	
ABC6: Activities are distributed in Departments and Activity Centers in the Hospital to adopt ABC.	
ABC7: Similar Activities are defined in the Hospital to form Activity Centers for ABC Adoption.	Abusalama (2008)
ABC8: The cost Accounting Department selects and analyzes the activities associated with providing health services.	Intakhan (2014) Al-Nuaimi (2018)
