Arab American University

Faculty of Graduate Studies

The Possibility and Requirements to Move from Traditional Costing System (TCS) to Activity-Based Costing System (ABC) in Palestinian Private Hospitals.

By

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Thesis Approval

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Declaration

I certify that this thesis submitted for the Master's degree in Accounting and Auditing is the result of my own research, except where otherwise acknowledged and that this thesis (or any part of the same) has not been submitted for a higher degree to any other university or institution.

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Abstract

This study aims to investigate the possibility and requirements to move from traditional costing system (TCS) to an activity-based costing system (ABC) in Palestinian private hospitals (PPHs), by studying the differences between the TCS system and the ABC system, and the basic factors for ABC system adoption in PPHs. this study also examines the importance of the ABC system, which provides the most accurate cost information for the calculation of the cost of health care services in the PPHs.

The contingency theory is a relatively significant advancement in ABC system research. This study aims to provide an in-depth insight of ABC system adoption success through contingency factors. The study utilizes the mediating variable (information technology readiness) as information technology affects the relationship between contingency factors and the adoption of the ABC system.

The quantitative approach was used in this study. Primary data were collected from six PPHs using an electronically distributed questionnaire. The analysis of the data is based on 105 respondents. Furthermore, primary data for the first half of 2022 were collected from the Istishari Arab Hospital (IAH). The results of the study show the ability of the ABC system to provide more accurate information about the costs of health services. Moreover, the study revealed that information technology readiness mediates a positive relationship between contingency factors and the adoption of the ABC system among PPHs. So, this study sheds light on the behavioral and organizational aspects of contingency theory that are important for PPHs to adopt the ABC system.

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

Contents

Page

Page

List of Tables

Page

Page

List of Figures

Chapter One

Introduction

1.1. Overview

In this Introductory Chapter we will take a look at general historic background to the study, the problem statement, importance of the study, the questions of study, the objectives, hypotheses development and conceptual model of the study, and definition of variables.

1.2. General Background

Traditional Cost System (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 most major disadvantages of these systems, as well as one of the most significant disadvantages (Cooper ,1987). TCS were developed in the early 1980's 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 in order to provide relevant information that will allow adaptation to their business environments appropriately (Drucker ,1963). This caused a problem because TCS was developed in the early 1980's before the big changes took place in business environments (Al-miri, 2007; Alshamlan, 2018; Ditkaew, 2019; Drury, 2021; Guilding, 2005; Johnson, 1987; Maiga , 2007; Albrrishi, 2020). It is possible that TCS was not very successful in the new business contexts since the provided information was in general, not conductive or timely enough to corrective action. This is due to the fact that 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 the fact that manufacturing organizations today create a vast assortment of customized products in order to more closely match their output to the requirements of the target market (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 in nature, 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 in order 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 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 uses 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 in a more effective way (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). Literatures is brimming with assertions that ABC is better to 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).

1.3. 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). TCS 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).

1.4. Importance of 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 fall short in these areas. Meanwhile, adopting 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 adoption ABC for services due to that can play main role in providing accurate information for managerial operating decisions and reflect that on profitability in hospitals.

1.5. Research Questions:

The study is carried out to answer the main question: “what the possibility and requirements are to move from a traditional costing system to an activity-based costing system in Palestinian private hospital?”, However, this question is broken down to five research questions:

RQ.1 To what extent does information technology readiness mediate the relationship between top management support and ABC adoption among PPHs?

RQ.2 To what extent does information technology readiness mediate the relationship between training & qualification and ABC adoption among PPHs?

RQ.3 To what extent does information technology readiness mediate the relationship between service diversity & complexity and ABC adoption among PPHs?

RQ.4 To what extent does information technology readiness mediate the relationship between overhead costs & cost structure and ABC adoption among PPHs?

RQ.5 To what extent does the relationship between information technology readiness and ABC adoption among PPHs?

1.6. Objectives of Study:

The current literature has provided significant attention to the adoption of the ABC system. However, it has been suggested that more comprehensive research is needed to enhance our understanding of this issue (Cagwin, 2002). Therefore, this research aims to provide further insight into the adoption of ABC in PPHs, considering the vital role it plays in monitoring overhead costs.

The primary objective of this study is to examine the possibility and requirements to move from a TCS to an ABC in PPHs. The study aims to identify and examine the factors that may influence the adoption of ABC in PPHs, including top management support, training and qualification, service diversity and complexity, overhead costs and cost structure, and information technology readiness. The research also aims to evaluate the extent to which information technology readiness mediates the relationship between these factors and ABC adoption among PPHs. Ultimately, this study aims to provide recommendations to facilitate the adoption of ABC in PPHs and shed light on the relationship between information technology readiness and ABC adoption in PPHs (Krumwiede, 1998; Reynols, 2013).

1.7. 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; Reynols, 2013; Elagili, 2015; Jusoh, 2015; Madwe, 2017; Martin, 2017; Al-Nuaimi, 2018; Aljabr, 2020; Albrrishi, 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 on the adoption of ABC in the PPHs as presented in figure 1.1.

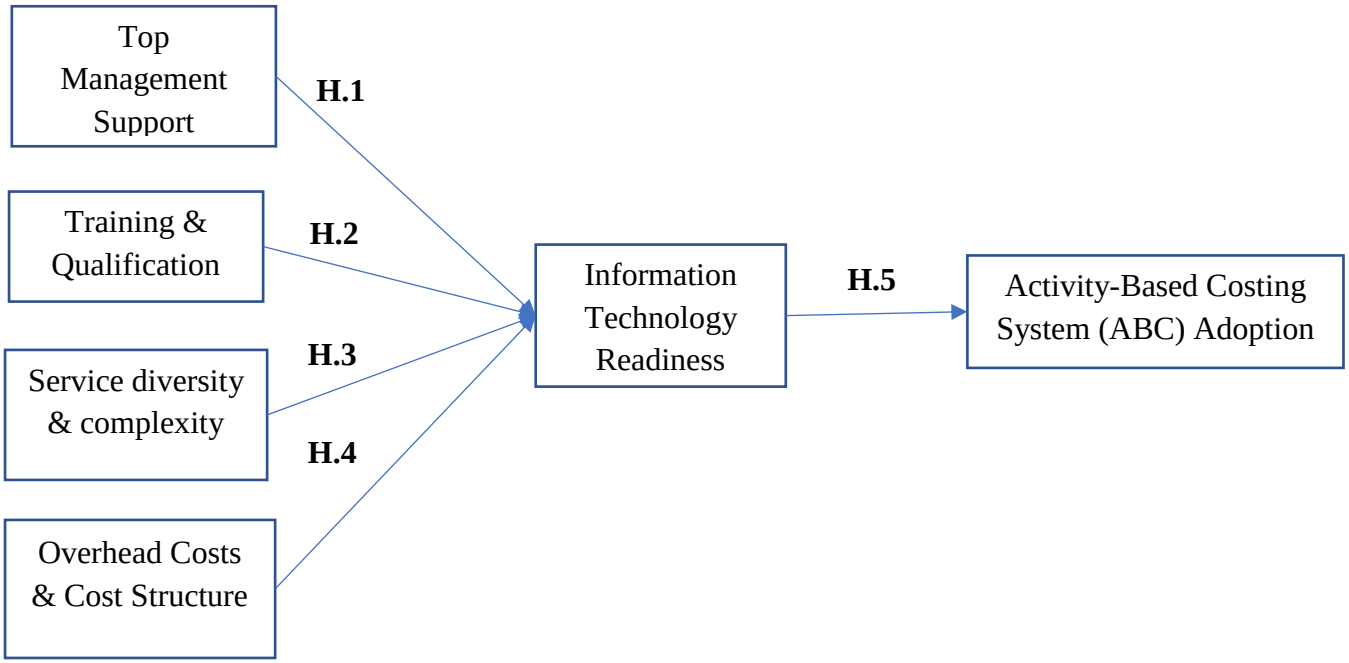

Figure 1.1: Conceptual Model of Study

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

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

H.3: Service diversity & 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 are positively associated with ABC adoption among PPHs.

1.8. Definitions of Variables:

1.8.1 Activity-Based Costing System (ABC) Adoption:

According to the Institute of Management Accountants (2021), ABC "is a costing methodology that identifies and assigns costs to activities, based on their consumption of resources, and then assigns the costs of those activities to the products, services, or customers that require them. ABC recognizes that not all activities consume the same amount of resources, and therefore, not all activities have the same cost. By identifying and measuring the costs of individual activities, ABC provides a more accurate and detailed view of the cost of production, which can help organizations make better-informed decisions about pricing, resource allocation, and process improvement ".

1.8.2 Top Management Support:

The top management is responsible for developing the mission and policy of the organization, making decisions, finding solutions to problems, directing the organization toward development and survival, and providing motivation to all employees involved in the adoption of the accounting system. Therefore, the success of adopting new accounting

systems for an organization depends on the knowledge and support of top management (Liu , 2007; Elagili, 2015; Brown, 2004; Hoang, 2020).

1.8.3 Training & Qualification:

Training and Qualified are provided by a service organization to transfer expertise and knowledge about organizational skills related to certain services. According to Elagili (2015), Hoang (2020), and Jebreel (2021), it is crucial to ensure that employees have a clear understanding of the advantages offered by a system, which can help them make informed decisions. This may involve providing training, communication, and feedback mechanisms to enhance employees' knowledge, skills, and motivation. By doing so, organizations can promote effective utilization and adoption of the system, which can lead to improved performance and outcomes.

1.8.4 Information Technology Readiness:

Information technology readiness may be described as the availability of technologies which are used for integrating different business operations into a single system that has a central database (Ahamadzadeh, 2011; Elagili, 2015; Albrrishi, 2020). Therefore, Information Technology is reviewed in this study as the degree to which hospitals employ IT to enhance the process of cost management.

1.8.5 Service Diversity & Complexity:

As Bjørnenak (1997), service diversity pertains to the range of services that a company offers, which may be tailored to meet the specific needs and preferences of individual customers or market segments. This can encompass a variety of service dimensions, such as the type, quality, scope, complexity, and delivery mode of services.

1.8.6 Overhead Costs & Cost Structure:

According to Drury (2021), overhead costs refer to “expenses that cannot be attributed solely and directly to a particular cost object, such as a product, service, or department. These costs are also known as indirect costs, and they include items such as rent, utilities, depreciation, and administrative salaries”.

Chapter Two

Theoretical Framework and Literature Review

2.1. Overview

This Chapter discusses cost accounting and the theoretical framework of TCS and ABC system. the chapter also discusses the contingency factors and reviews some empirical studies on the relationships between contingency factors, ABC adoption, especially amongst PPHs.

2.2. Background of Cost Accounting

Cost management is a highly critical topic for contemporary organization management. It is much more critical in the healthcare industry because of its strong presence.

Cost accounting is defined as “a system of collecting, analyzing, classifying, recording, summarizing, assessing and allocating numerous alternative courses of control and actions of costs” (Hansen, 2014). It is meant to enable the management to take the most appropriate course of action based on the cost capability and efficiency. The cost system is in charge of providing management with the specific cost information they want in order to monitor current operations and make long-term plans (Atkinson , 2004).

Managers don't need information from other organizations to make decisions because they only make decisions for their specific organization. Instead, information must be relevant for a particular setting. Managers primarily utilize cost accounting systems to assistance in decision-making, although they are also commonly used in financial accounting (Rzeszutek, 2015).

Cooper and Kaplan established four phases of a cost system (Cooper, 1992b):

❖ Phase 1: Illustrates that TCS provide inadequate information which is utilized for financial reporting, even though many large organizations still use such a system.

❖ Phase 2: This phase says that TCS conform with auditing standards and fulfill the financial reporting requirements, but it has a limitation in giving meaningful information to management.

❖ Phase 3: This phase is the ABC system which offers more accurate information about operational cost, products cost, services and customer cost, and business processes cost. Employees can use the system's built-in learning and monitoring features to detect and correct problems.

❖ Phase 4: This phase takes into account the integrated cost systems by linking the full system with planning and budgeting systems that may assist top managers to make the proper and effective decision.

2.2.1 Types of Costs:

Cost accounting helps decision-making processes by permitting organizations to calculate, analyze, and monitor their costs. There are three key components to any costing system (Haldma, 2012) :

1) **Direct Materials:**

   Brigham, (2011) defined direct materials as “the materials which are directly contributed to a product and those easily identified in the finished product “. Direct materials include things like wood for furniture, paper for books, leather for shoes, and plastic for water tanks.

2) **Direct Labor:**

   Direct labor includes all workers who are directly associated with any specific activity of supervision, production, transportation of materials, or product, and maintenance,

and who are directly associated with the transformation of raw materials into finished goods. Due to the fact that they have no significant value, wages provided to trainees or apprentices do not fall under the category of direct labor (Samuel, 1995).

3) **Overheads:**

The term "indirect expenses" refers to overhead costs such as labor and materials. overheads fall into five categories: Administrative costs, manufacturing or production overheads, distribution expenses, selling expenses, and research and development expenses. (Garrison R. &., 2008).

These three components are utilized to develop a costing system that is adequate for the circumstance.

2.3. Traditional Costing System (TCS)

Volume-based costing systems (VBC), which are also referred to as TCS, allocate overhead costs to cost objects based on output volume measurements like machine hours, direct labor hours, and material costs. However, this approach may be inaccurate because it combines costs from different activities into a single cost pool and divides them by production hours, resulting in a single average rate that applies to all items, irrespective of their quantity or complexity. Furthermore, establishing a clear cause-and-effect relationship between overhead costs and specific products using TCS may be challenging since cost allocation is primarily based on labor hours, machine hours, or units produced. Therefore, alternative methods like activity-based costing (ABC) should be explored as they provide more accurate cost information (Kaplan, 1988; Foster, 1997).

2.4. Overhead Allocation

Overhead costs refer to expenditures that cannot be attributed to specific cost units and are allocated across various cost centers, such as manufacturing, administration, selling, and research and development (Walker, 2009). Kaplan (1984) was among the first to identify

indirect costs as overhead costs. Indirect costs require proper division across different cost units (Innes, 1990).

In a manufacturing organization, overhead costs are categorized by their functional department. Manufacturing overheads include all manufacturing costs except direct labor and material costs. Administrative overheads include expenses associated with general administration and R&D, while selling costs are those required to promote and distribute a product or service (Horngren, 2015). Examples of selling costs are advertising, sales staff salaries/commissions, warehousing, and dispatch transportation expenses.

Figure 2.1 below illustrates the different types of manufacturing and non-manufacturing cost classifications. The figure highlights that in certain cases, two extra categories of manufacturing costs are used (Drury , 2021).

Prime cost is the total of all direct manufacturing costs, including direct materials and labor costs. Meanwhile, conversion cost refers to the sum of direct labor and manufacturing overhead costs. It represents the cost of converting raw materials into finished goods (Drury , 2021).

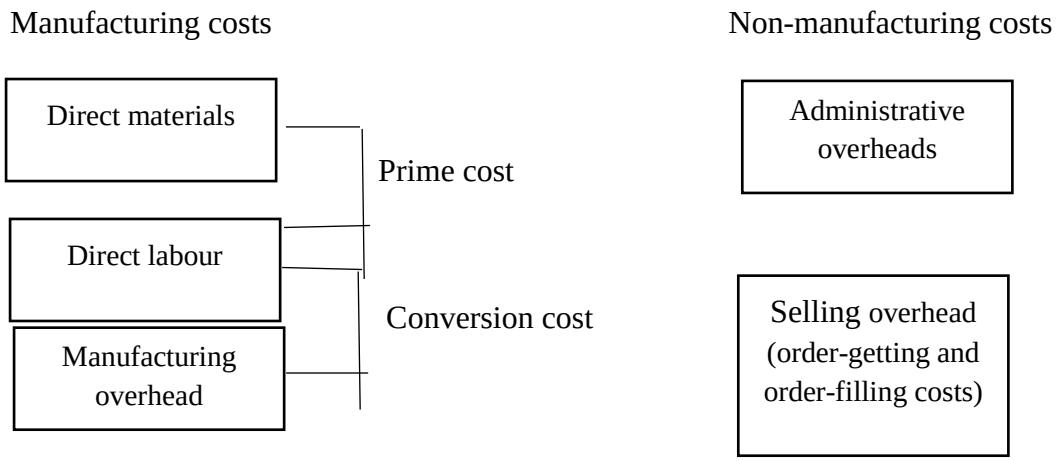

Figure 2.1: Manufacturing and non-manufacturing costs.
Source: Drury (2021: p.29).

Overhead costs, which include administration, production, selling, and distribution, are classified as the responsibility of an organization to incur (Michael, 2008). Most operational costs related to general overheads are allocated through overhead allocation (Gordon, 1984). However, Walker (2009) argues that fixed production costs are essential as manufacturing is a key business activity that transforms inputs into finished products within the company.

Drury (2004) explains that a two-stage allocation technique is necessary to create departmental or cost center overhead costs. The first stage involves assigning overhead costs to cost centers, while the second stage involves reallocating cost center overheads to cost objects (e.g., services) using a second-stage allocation basis.

According Horngren (2015) proposed a four-step process for overhead allocation which includes: (1) the allocation of all manufacturing overheads to service and production cost centers, (2) the redistribution of costs assigned to service cost centers to production cost centers, (3) the computation of separate overhead rates for each production cost center, and (4) the assignment of cost center overheads to products or other selected cost objects. Drury (2021) presented a two-stage approach for TCS, as follows:

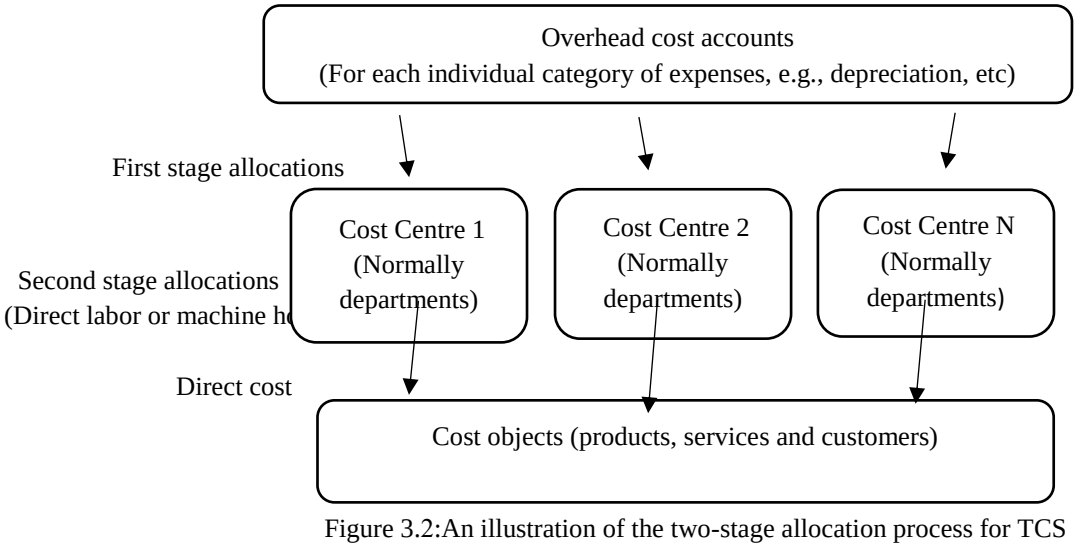

Figure 3.2:An illustration of the two-stage allocation process for TCS

Source: Drury (2021: p.56).

The TCS uses a two-step allocation process for overhead costs, as shown in the figure. The first stage involves allocating costs to cost centers using first stage allocation bases, followed by reallocation to production departments using one of three methods. In the second stage, overhead costs are absorbed into cost objects using allocation bases such as direct labor or machine hours. Each department establishes an overhead rate with different bases, and equations are used to determine cost allocations. This method is crucial for accurate representation of total costs incurred by each cost object in the organization (Drury, 2021).

2.5. 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.

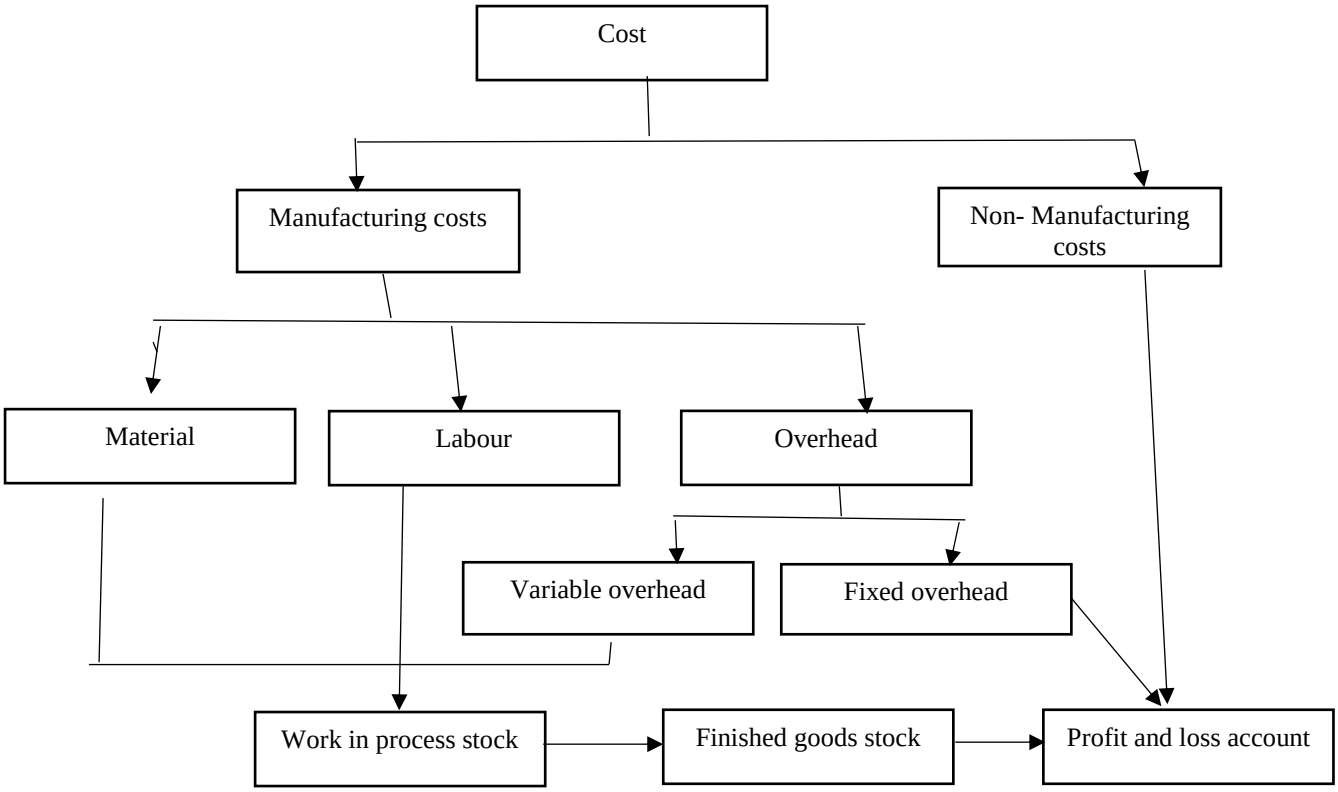

Figure 2.3: Variable costing system

Source: Drury (2021: p.157).

TCS has been criticized for its limitations in accurately allocating indirect costs to products due to the use of volume-related bases in cost allocation as diagram above. Kaplan and Cooper (1987) argued that TCS was suitable when direct labor was the main value-adding activity. However, with the development of manufacturing technology and the increasing proportion of overhead costs, TCS may no longer provide accurate information for decision-making. This can lead to inaccurate pricing decisions and lost revenue opportunities. TCS also has the potential for cross-subsidization of products, where some products are allocated a disproportionate amount of overhead costs compared to their actual consumption of resources.

To address these issues, ABC is a more sophisticated costing system that allocates overhead costs to products based on the activities that actually drive them, resulting in a more accurate

view of the true costs of each product. This approach can help organizations make better pricing and resource allocation decisions (Cooper, 1990; Wouters, 2017).

2.6. ABC developments from TCS Shortcomings

ABC was developed to address the limitations of TCS in accurately calculating production and service costs and providing decision-making information (Cardos, 2011). This was due to the potential for cross-subsidization of products and inaccurate allocation of overhead costs, leading to incorrect pricing decisions and lost revenue opportunities (Innes, 1998). ABC aims to overcome these inadequacies by allocating overhead costs to products based on the activities that drive them, resulting in a more accurate view of the true costs of each product (Cooper, 1990; Wouters, 2017).

ABC was introduced by Cooper and Kaplan in the late 1980s with the belief that product costs should consider all company activities, as they support the manufacturing and delivery of goods and services (Yousif, 2011). The system is based on the idea that activities require resources, resulting in costs. By identifying activities, ABC can help organizations track the cost of each product (Yousif, 2011). ABC gained popularity in the early 1990s, with most large organizations adopting it and commercially available software being released (Turney, 2008)

2.6.1 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.

2.6.2 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 the purpose of this study, ABC is referred to as a system.

Figure 2.4 depicts the ABC process's resources, activities, and cost objectives, as well as how they connect to each other:

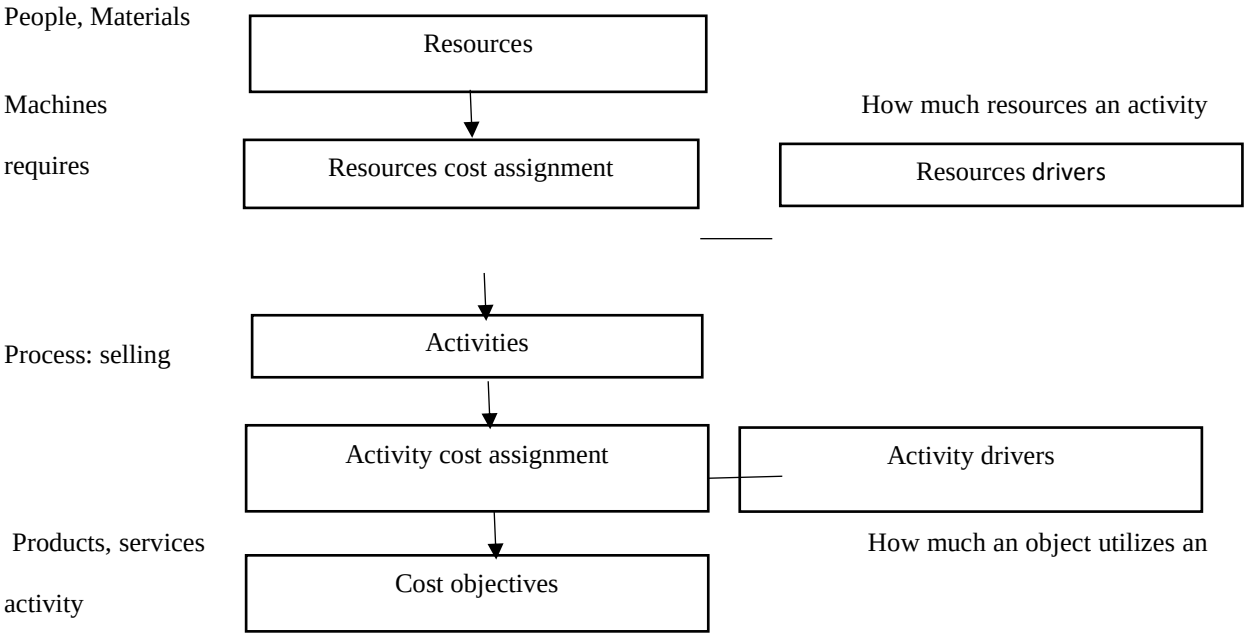

Figure 2.4: ABC process's resources, activities, and cost objectives

Source: (Fichman, 2002)

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 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, 2001; Turney, 1996; Krumwiede, 1997), By identifying unnecessary and inefficient activities, ABC helps organizations make strategic decisions and cut operational costs (Pandey, 2012; Chea, 2011) .

2.6.3 Design of the ABC System:

According to 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 number of 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).

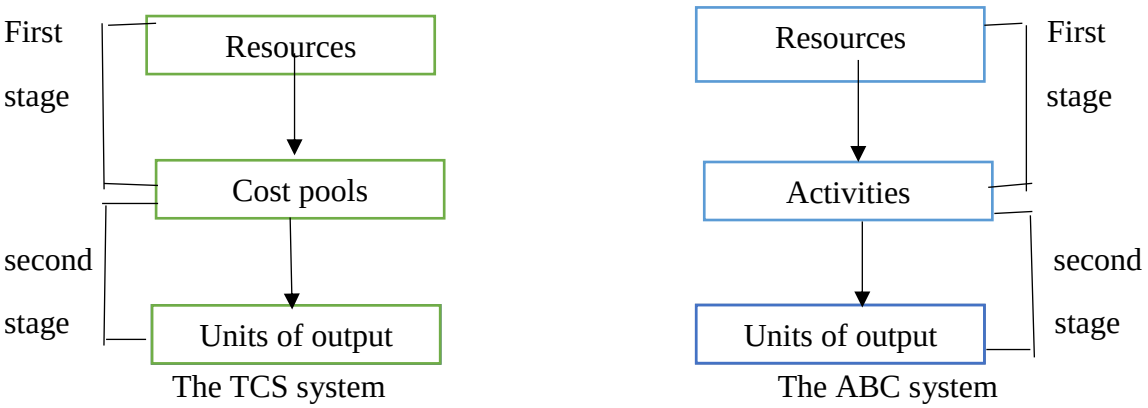

Figure 2.5: A comparison between TCS & ABC systems.

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.

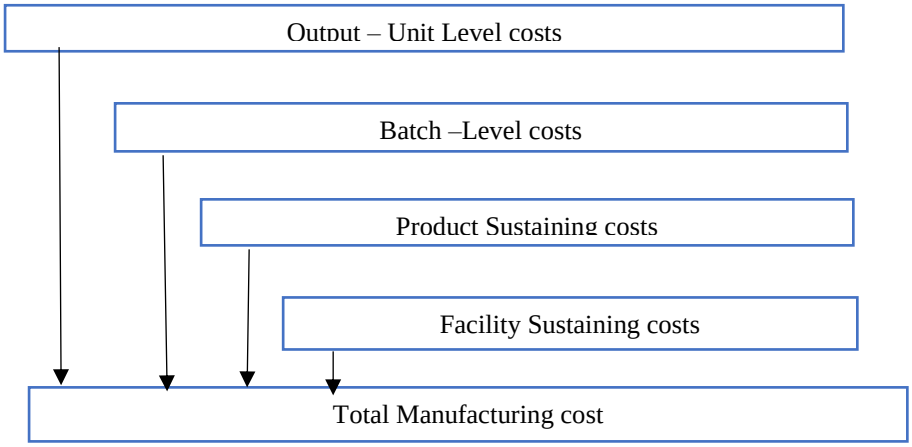

Figure 2.6: Manufacturing cost hierarchy

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).

Drury (2021) provides the following illustration of the two-stage ABC allocation process:

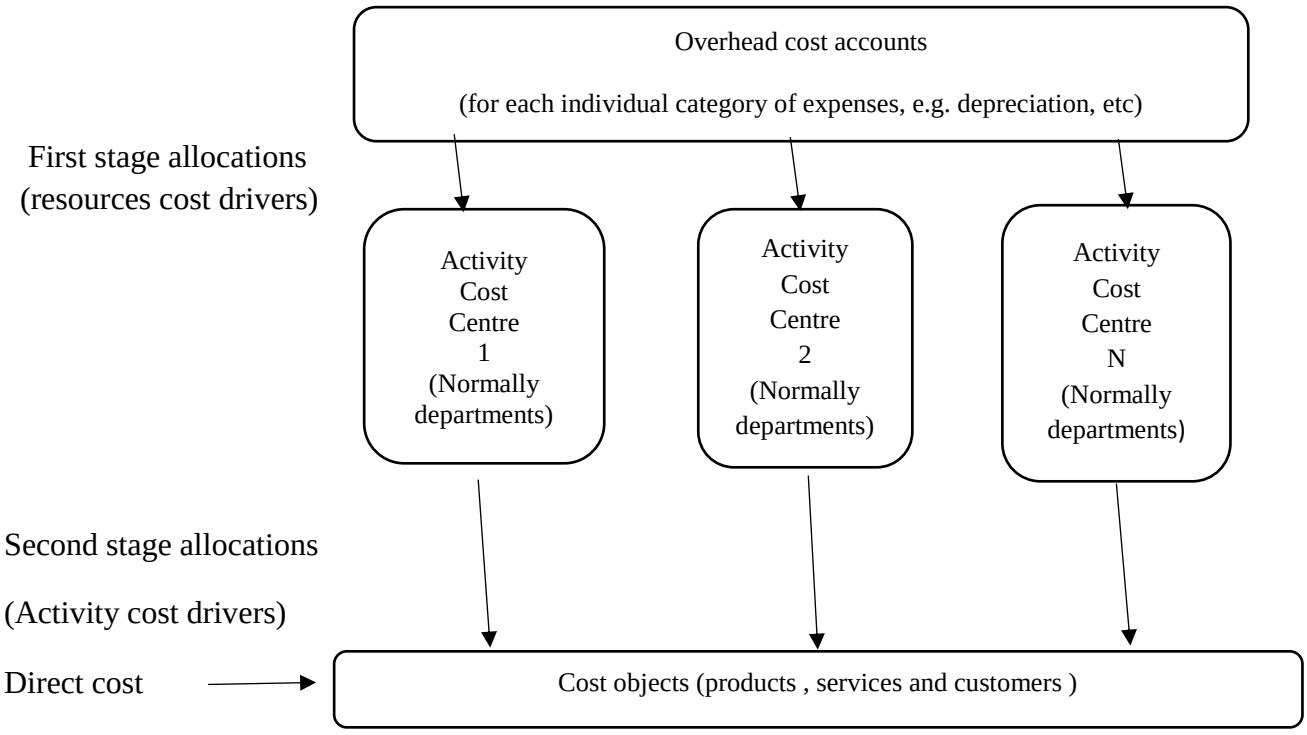

Figure 2.7: Two-stage allocation process for ABC.

Source: Drury (2021: p.56).

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).

1- Purposes of the ABC System:

Before selecting a system design, it is crucial to have a clear understanding of its intended purpose. Organizations often adopt Activity-Based Costing (ABC) systems based on a set of objectives. Cooper (1990), Drury (1996, 2000, 2021), and Turney (1996) identified several goals during their research, including (1) providing information on production obligations to inspire innovation, (2) providing data on non-manufacturing and non-value-adding activities for cost reduction, (3) offering cost data to project engineers for high-quality product design and lower pricing, (4) monitoring market behavior, (5) computing price strategies, (6) distributing product costs to determine product profitability, and (7) envisioning a cost-control system for the incorporation of shares into goods and monitoring market developments .

2- The Chosen Team:

To implement ABC costing in an organization, a team consisting of representatives from important sectors and departments should be formed. According to Gunasekeran (1999), the team should consist of at least four members: an engineer with knowledge of strategic management, an accountant familiar with accounting applications, a manufacturing department manager or supervisor, and an industrial engineer. Together, they can effectively implement ABC in a professional setting.

3- Organizational Issues:

Innes (1998) suggests that when deciding whether to implement an ABC system, it is essential to consider the specific characteristics and situation of the organization. Therefore, during the system design phase, the ABC team should address several organizational issues, as identified by Innes (1998). These include the number of products or services, current overhead absorption method, range of product lines, overhead growth rate, variation in

customer service levels, number and variety of distribution channels, and the importance of overheads in the overall cost structure.

4- Defining the Major Activities in an Organization:

In ABC systems, the primary stage is the identification and characterization of activities, as it establishes the framework and scope of the system (Cooper, 1990, 1991, 1998; Drury, 2021; Kaplan, 1998; Scapens, 1991). This process enables accountants to assess the actual happenings in the relevant sections of the organization and ensures that the costing system is based on factual data (Innes, 1998). Activities are specific tasks carried out by an organization to produce or provide a product or service and are defined by verbs and related objects (Cooper and Kaplan, 1998; Ittner, 1997). As organizational differences in technology, size, and nature impact the kind and location of activities, the quantity and type of activities also vary depending on the business strategy employed by each organization (Turney, 1996).

5- Definition of Principal Cost Drivers:

The identification of principal cost drivers is a crucial part of ABC design, where the ABC team must identify the components that influence cost and operations. The cost drivers' job is to assign the costs from accounting books to the activities and groups developed in the organization (Kaplan, 1998; Homburg, 2001). However, selecting the right cost drivers is a major challenge that requires accuracy and consideration of various aspects, such as providing a good explanation of costs in each activity pool, easy measurement, straightforward data collection, and product identification (Drury, 2021). To ensure accuracy, cost measurements and a reasonable explanation of activity costs must be provided by cost drivers, with Cooper (1990) suggesting that an organization's reported costs are more accurate with more cost drivers. However, Cooper (1988) cautioned that simple cost systems may impose low measurement costs but may also provide substantially misleading product costs and drive managers to make bad decisions.

6- Activity Cost Pools:

A cost pool refers to the costs associated with a set of activities within the product development process, as defined by Turney (1996). Cost drivers are described in terms of their activities, and when pooled together, they form cost pools. The ABC design must include two essential cost pools: a totally absorbed activity cost pool that includes all identifiable costs, and a second pool that ensures costs used in ABC decision-making are valid and related to work processes, maintaining information reliability and minimizing variability.

7- Determining Secondary Cost Drivers:

In ABC systems, the primary stage is the identification and characterization of activities, as it establishes the framework and scope of the system (Cooper, 1990, 1991, 1998; Drury, 2021; Kaplan, 1998; Scapens, 1991). This process enables accountants to assess the actual happenings in the relevant sections of the organization and ensures that the costing system is based on factual data (Innes, 1998). Activities are specific tasks carried out by an organization to produce or provide a product or service and are defined by verbs and related objects (Cooper and Kaplan, 1998; Ittner, 1997). As organizational differences in technology, size, and nature impact the kind and location of activities, the quantity and type of activities also vary depending on the business strategy employed by each organization (Turney, 1996).

8- Define Cost Objects:

Cooper (1990) categorized cost objects into two types: parts and products, where the former is used for purchasing decisions while the latter provides an accurate cost of the product. To assign costs to a cost object, Cooper (1990) introduced the concepts of "first-stage cost driver" and "second-stage cost driver" for allocating costs from a general ledger to an activity cost pool and from the activity cost pool to the cost object, respectively. Lin (2001) explains that cost drivers are usually expressed as a cost-per-unit by dividing the total cost of resources used by the number of units produced. However, the implementation of ABC may

present challenges, particularly in direct cost tracing for employees who spend some of their time on a particular activity, as noted by Cooper (1990).

9- Comparing Product Cost with TCS:

The costs derived from ABC are compared to the costs derived from TCS to provide better understanding to the advantages of the ABC.

10- Developing a Framework for Implementing ABC:

Implementation of the ABC system is relatively organization specific. The system should be understood and evaluated and then a framework should be built for its implementation.

2.6.4 Need for ABC:

ABC has become crucial in organizations as they are often unaware of which activities contribute to their production or how each activity's expense is used (Cokins, 1999). The challenge to change costing practices during the 1990s, including implementing new cost management innovations like ABC, impacted organizations differently (Bhimani, 2002). Gurses (1999) found that manufacturing businesses are becoming more information-intensive, flexible, and customer-sensitive. Applying ABC can facilitate cross-functional decision making and close communication gaps in organizations (Campbell, 1997). ABC was developed as a practical solution to the problems associated with traditional costing (Cokins, 1999).

2.6.5 Differences between TCS and ABC

According to (Huang,2018), the most important differences can be identified as shown in the table (2.1) below:

Table 2.1:The Main Differences between TCS and ABC.

The differences	TCS	ABC
Cost Pool	Costs are grouped into cost pools or cost centers, and the combined costs in one center are heterogeneous and do not return to a single factor.	Costs are grouped into cost pools on the basis of cost drivers so that each pool contains costs for activities that share the same cost driver.
Cost Allocation	Indirect costs are allocated on the basis of production volume, direct labor, or machine hour rate.	The costs are allocated to the outputs from the activity cost pools using a basis commensurate with the cost drivers.
Cost Object	Cost collection is focused on a single component, which is the product or service unit.	The cost position varies, it may be the outputs of operations or production lines.
Cost Driver	Used to group costs into indirect/fixed costs.	Used to group costs into activity cost pool.
Decision Support	This system may cause the costs to be charged to the products by an increase or a decrease. Therefore, there is no confidence in the information obtained as output of the system, and therefore this system does not support rationalizing decision-making.	The system helps better in rationalizing administrative decisions due to the abundance, quality, accuracy and transparency of the information obtained as outputs of the system.
Cost Control	Cost control is based on a departmental approach of grouping costs.	By calculating the precise cost of organizational activities, it helps management reducing costs and prioritizing efforts.
Implementation Cost	The low cost of implementing the system, which makes the system suitable for the small companies, which are characterized by a simple mix of their products.	The cost of implementing the system is high, but this cost is justified, especially for large companies that have multiple products and that rely on automation in their production.

2.6.7 Advantages of ABC Adoption:

1. ABC is a comprehensive system that identifies the cost and reasons for consumption of each activity or group of activities, as well as allocates costs of activities to products based on the driver for each activity's costs (Wegmann, 2009).
2. ABC helps management investigate the costs of activities in depth, enabling them to analyze activities appropriately, and exclude high-cost activities that do not add value, and improve the performance methods of low-value added activities (Skaik, 2006).
3. ABC assists in making better management decisions, including decisions on whether to stop the production of a particular product or expand its production or purchase from abroad, when the costs of products are accurately defined (Needy, 2015).
4. ABC decreases and rationalizes wasted resources, helps managers improve sales and marketing, and the effectiveness of economic units, and contributes to the provision of financial and nonfinancial information on economic units, which enhances profits and improves performance and work flow (Grasso, 2005).
5. ABC provides managers with a better understanding of cost-benefit analysis and how to make better use of limited resources, as well as getting more accurate information about the costs of various operations (Ellis, 2003).
6. ABC helps link corporate strategy to operational decision making (Berliner, 1989).

2.6.8 Successful ABC Adoption Measurement:

Over the years, various empirical studies have examined the effectiveness of ABC (Anderson, 1995; Anderson, 1999; Berliner, 1989; Ellis, 2003; Grasso, 2005; Shields, 1995; Needy, 2015; Wegmann, 2009). However, these studies have employed different criteria to assess the success of ABC, such as the utilization of ABC information for decision-making, perceived financial benefits, and increase in company values. Anderson and Young (1999) proposed a three-point criteria for evaluating ABC implementation: (1) whether ABC

outcomes are used to reduce costs; (2) whether ABC outcomes are used to improve processes; and (3) whether the accuracy of ABC outcomes is higher than that of traditional costing systems (TCS). They found that the assessment of ABC success varies among different employee groups. Cotton (2003) and Moisello (2012) attributed the inconsistencies in the literature on ABC's success to various concepts of ABC success employed in different contexts. Therefore, measuring perceptual outcomes is the most common method of assessing ABC's success based on its impact on organizational processes, perceived benefits, technical characteristics, and employees' attitudes towards its performance (McGowan, 1998).

2.6.8.1 Impact of ABC on Organizational Process.

Booth (1999) argued that ABC is intended to assist organizations in addressing the ongoing difficulties of providing high-quality services at a reasonable cost and within the stipulated time. TCS was criticized for its inability to aid management in dealing with these issues, leading to the introduction of ABC to provide information that would enhance processes and functions while identifying inefficiencies. The impact of the ABC system on the quality of decision-making and efficiency reflects the effect of organizational processes (Fei, 2010; Yanren, 2008).

2.6.8.2 Technical Characteristics.

Fei (2010) and Yanren (2008) have noted that compared to TCS, ABC system offers more precise, timely, reliable, and accessible information with superior technical attributes. The functional features of the ABC system also include providing information that is understandable, accurate, reliable, accessible, and timely.

2.6.8.3 Employees' Attitudes.

The attitude of employees is a crucial factor in determining the acceptance and functionality of ABC within an organization. McGowan (1998) suggests that if users do not favor a system, it is unlikely to be accepted, and this view has been fundamental in measuring ABC success in research. Despite the arguments in the management accounting literature that ABC systems improve the relevance, reliability, and accuracy of service costing and enable the evaluation of value-adding and non-value-adding activities, making ABC better than TCS, the belief of ABC system users that the system is unsatisfactory and unworthy can lead to the failure of the ABC system in the organization (Fei, 2010; Yanren, 2008).

2.6.9 Limitations of ABC

Several studies have shown the success of ABC, but there are also limitations that may lead to its failure. These include the high cost, time, and effort required for implementation, as well as the need for accounting technology/systems, as noted by Namazi (2016) and Kim (2011). In addition, some activities, such as the chief director's salary, may be difficult to allocate to specific products or processes, as discussed by Kaplan (2005). Furthermore, ABC's focus on detail may lead to a loss of sight of strategic objectives. For example, an activity that may not seem rewarding or value-adding might actually contribute to achieving other strategic objectives of the organization (Kaplan, 2005).

2.7. ABC in Health Care:

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 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 diagnoses 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. Cardinaels (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.

2.7.1 Activities Determination in Hospital:

The activities performed within the hospital to provide treatment services can be divided into five main groups according to a classification by Cooper (1990, p 4-14), Durgham (2009) and Drury (2021, p 275-277) in the table (2.2) below:

Table 2.2: Identification of major activities performed in the hospital.

Name of activity	**Definition**
Unit-Level Activities (Patient)	These are the activities that are directly related to providing the treatment service to the patient, and their occurrence is appropriate directly with the number of patients, the costs of these activities include direct costs (materials and work), so it means any cost that can be easily and easily tracked, such as: fees for doctors, nurses, medicines… etc.
Batch-Level Activities (group of patients)	These are the activities associated with a group of patients, such as cardiac department, regardless of the number of patients in each group (5-10) patients, for example: preparing the patient's room, preparing the cardiac Cath room, examining patients, etc., all of these represent cost pools of the activity. The cost of these activities is common to all patients within the same group, and accordingly, the cost drivers of these activities are, respectively: the number of times the patient's room is prepared, the

	number of times Preparation of the catheterization room, examination time of the patient.
Service -Sustaining Level Activities (Departments of Therapeutic Specialties)	These are the activities associated with a specific specialized department, and the rest of the other departments do not benefit from it, for example, the cardiology department, in which activities vary, such as: Cardiac Cath, MVR, and CABG, and these costs are charged to the concerned department using appropriate cost factors, such as: time Cardiac Cath, MVR time, and CABG time.
Customer-Level Activities (specific patient)	They are activities that are related to the needs of a particular patient and do not benefit other patients, such as Heart operations One of these operations is TAVI. Where the operation belongs to a specific patient is different from another patient. These costs are charged to the particular patient using appropriate cost factors, for example: valve size as a basis for linking this cost to the patient.
Facility-Sustaining-Level Activities (hospital)	These are the activities necessary to support the operations of the hospital as a whole, and to provide the administrative and technical infrastructure that make the process of providing treatment service possible, such as: management salaries, equipment depreciation, maintenance of equipment and machinery, heating and lighting, public relations, hygiene and security and preparing reports. And due to the difficulty of allocation the costs of these activities, they are treated as common costs for all treatment services, and therefore they are deducted as a total amount from the Income statement for all service lines as period costs or randomly allocated.

2.7.2 Benefits of Successful ABC Adoption in Public and Private Hospitals:

ABC technique provides several benefits for managers in healthcare institutions. It allows for more reliable cost measurement and provides an understanding of how costs were generated. It also helps managers evaluate ways to optimize their businesses. ABC guarantees information accuracy, which is crucial for making decisions based on the costing system. It

provides more accurate profitability analysis, financial planning, positive supervising, and evaluating performance, leading to improved quality of healthcare services.

A study conducted in Turkey using ABC showed that its implementation can lead to more accurate financial planning and financial decisions, as well as improved patient service, making healthcare institutions more competitive (Maliyetleme, 2020).

Cooper (1991) explained that ABC enhances decision-making by providing cost allocation for each activity, which helps assess which activities create income and are profitable. Furthermore, Doyle's (2008) survey of hospitals in Ireland showed that more than half of the respondents use ABC, which is higher than previous adoption studies in other sectors. The survey revealed that ABC adoption was due to more accurate costing and better use of resources, resulting in more relevant and accurate cost data for patients, leading to greater efficiency in response to rising healthcare costs.

Krug (2009) found that radiopharmaceutical costs are the major cost component in positron emission tomography, which plays a vital role in cardiac, cancer, and neurological treatments. Yarahmadi (2020) used the ABC technique to estimate the cost of ultrasound and CT scan services in Ahvaz's Imam Khomeini Hospital, revealing a gap between medical tariffs and overall cost.

ABC adoption in Jordanian private hospitals played a critical role in maximizing profitability and reducing costs (El-dalahmeh, 2020; Abu Mogli, 2008). Durgham's (2009) study in Palestine showed that overhead costs play a crucial role in determining the cost of therapeutic services in European hospitals in Gaza, and ABC provides more accurate and consistent pricing information for medical services based on the activities performed. Effective planning is required in the healthcare sector to establish an ABC system.

2.8. 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).

2.9.1 The Adoption Factors of ABC System:

The TCS has lesser 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 the gathering and analyzing cost information. The ABC systems, which were designed by a number of different accounting and consulting organizations, have recently seen widespread adoption from a wide range of organizations.

2.9.1.1 Behavioral and Organizational Variables:

behavioral and organizational variables are Significant for cost management practices, these variables Include: top management support, training and qualification, service diversity and complexity, and cost structure and overhead costs. (Fei and Isa, 2010).

2.9.1.1.1 Top Management Support:

Top management plays a crucial role in setting the organization's vision, making decisions, and ensuring the success of modern management systems like ABC. ABC is "a cost accounting method with a “top-down” approach for estimating the cost of a project or service within an organization"(Marie ,2010). The success of ABC implementation depends on the

level of engagement and participation of managers, and lack of top management support is the primary reason for its failure. This support can be visible, in terms of providing the necessary resources and tools, and commitment to using the data provided by ABC. Studies have found a positive relationship between top management support and ABC adoption in organizations, and continuous support is crucial for successful adoption. (Hoozée, 2010; Majid, 2008; Liu, 2007; Brown, 2004; Krumwiede, 1998; Marie, 2010).

2.9.1.1.2 Training & Qualification:

ABC has shown success in various studies, but its adoption can be hindered by limitations such as cost, time, and method. In order for ABC to be successful, it should be used in conjunction with accounting technology/systems, which can increase implementation costs. ABC's focus on details may also cause organizations to lose sight of strategic objectives. Organizations that use ABC should also support GAAP cost accounting for external reporting purposes. Lack of training and staff resistance can lead to wasted time and cost, so adequate training is essential for ABC adoption. IT is a critical factor for ABC adoption, and managers may not use ABC information if they consider it inaccurate or outdated. Technological changes have also led to ABC implementation failures in some industries (Kaplan, 2005; Govender, 2011; Foster, 1997; Krumwiede, 1998; Anderson, 2002; Majid, 2008; Shields, 1995; Aldukhil, 2012; Reeve, 1996; Porter, 2008; Askarany, 2007).

2.9.1.1.3 Service Diversity & Complexity:

Product diversity refers to the varying demands that cost objects place on activities or resources. Drury (2021) highlighted that product diversity involves multiple factors such as manufacturing, setup, assistance, materials, intricacy, volume, and magnitude. Schoute (2011) and Abusalama (2008) suggested that one of the most significant factors for adopting ABC is the presence of a diverse range of products or services. Organizations with a large product line and production diversity are more likely to adopt ABC, as allocating overhead

costs for a huge number of production lines and products is more complex than allocating costs to fewer products. Malmi (1999), Jusoh (2015), and Van Nguyen (1997) also support this view. Baird (2004) found that service diversity and ABC adoption have a direct relationship with huge significance in private non-manufacturing and manufacturing companies in Australia. Cooper (1988) also noted that product diversity includes different manufacturing volumes, sizes, degrees of complexity, different materials, and configurations. The ABC system can solve the issues of cost distortion and price decisions that arise from using traditional cost systems for a diverse product range.

2.9.1.1.4 Cost Structure and Overhead Costs:

overhead costs can burden the cost of services and products, making traditional cost accounting systems like TCS less accurate. This issue can be resolved by using advanced cost accounting systems such as ABC, which helps allocate overhead costs to products more accurately and avoid wastage of costs (Brown, 2004; Kaplan, 1998; Van Nguyen, 1997). Studies show a positive correlation between ABC adoption and high overhead costs, with businesses that manufacture more items and have higher overhead costs being more likely to adopt ABC systems (Booth, 1998; Majid, 2008). ABC is regarded as the most effective cost accounting method used by modern businesses, with its primary advantage being the ability to compute additional overhead costs accurately.

2.9.1.2 Information Technology Readiness:

Behavioral and organizational issues related to the adoption of ABC have been extensively studied, but there is a need for further investigation of technical issues (Abusalama, 2008). Information technology (IT) has become increasingly significant in virtually every industry, and the integration of IT and accounting operations is being explored as a means of improving organizational efficiency (Berry, 2009; Granlund, 2003). Enterprise Resource Planning (ERP) is an IT approach that can facilitate the integration of business functions into

a shared database, allowing for greater interoperability and the digitalization and automation of organizational services (Hitt, 2002). The importance of IT in accounting cannot be overstated, especially with the prevalence of modern accounting and information systems (Efendi, 2006; Chapman, 2005) and management control (Dechow, 2005).

2.9.2 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 have been using Contingency theory. This was caused by ABC introduction, which promoted adjustments to the costing systems utilized 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 technology factors, one of the primary techniques that is being used in the design of control system is the contingency theory (Dent, 1990). Add to that, this hypothesis have been placed to the test in order to investigate the connections between a variety of contingency factors and the 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; Reynols, 2013; Elagili, 2015; Jusoh, 2015; Madwe, 2017; Martin, 2017; Al-Nuaimi, 2018; Aljabr, 2020; Albrrishi, 2020; Alshamlan, 2021).

Appendix A summarizes the studies of ABC adoption that have used different contingency theory methods.

2.9. 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 hospital (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 have 60 hospitals in Palestine at the end of 2021(Health., 2021), as shown in the figure below.

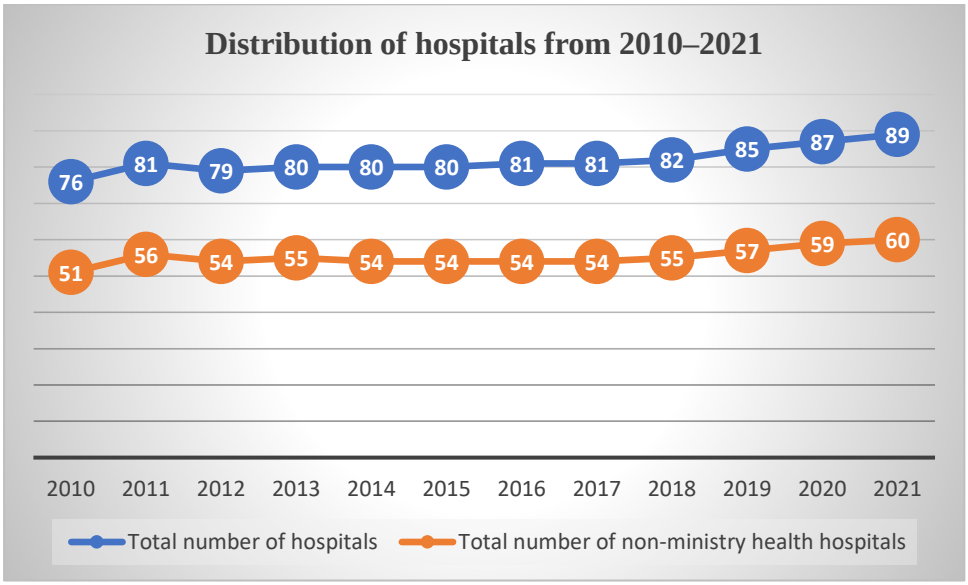

Figure 2.8: Distribution of hospitals from 2010–2021.

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 (Itihad 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).

2.8.1 Istishari Arab Hospital (IAH):

Istishari Arab Hospital (IAH) opened in 2016 with an initial capacity of 100 beds and plans to gradually increase to 330 beds within two years (IAH, 2022). The hospital is situated on a 13,000 square meter plot of land, and the building occupies 25,000 square meters over 14 floors (IAH, 2022). IAH offers advanced technology and employs highly qualified medical staff to provide patients with quality care, eliminating the need to travel abroad for medical treatment (IAH, 2022). The hospital aims to offer exceptional hospitality services, ensuring a comfortable and welcoming environment for patients and visitors (IAH, 2022).

2.8.1.1 Message of IAH:

To broaden the involvement of the private medical sector in rendering specialized medical services of exceptional quality that meet global standards, providing cutting-edge health care services for patients, contributing to health education advancement, and drawing skilled medical experts to facilitate the localization of all necessary medical services for Palestinian patients and making them available domestically. (IAH, 2022).

2.8.1.2 Features of IAH:

IAH aims to provide high-quality tertiary services, with the goal of reducing the need for patients to seek treatment outside the country, thus saving public expenditure (IAH, 2022). The hospital has obtained international accreditation from the Joint International Accreditation Committee (JCI) for the Quality of Health Services, reflecting its commitment to meeting international evaluation criteria (IAH, 2022). The hospital's Hematology and

Oncology Department, which opened in 2019, offers advanced drug protocols and provides an alternative to Israeli services with financial and economic benefits (IAH, 2022).

2.8.1.3 Vision of IAH:

The main goal of IAH is to provide high-quality medical services and ensure patient safety through the use of advanced medical technology, a highly qualified staff, continuous training and education, and a suitable diagnostic and therapeutic environment (IAH, 2022).

2.10. Previous Empirical Studies:

Adopting ABC depends on a number of conductive conditions, according to earlier studies that assessed ABC (Cooper, 1988;1991). for example, a study by cooper (1988) concluded that some Contingency Factors like Information Technology, Organizational Structure, helped firms rationalizing ABC adoption, which led to more evaluation on Academic level for ABC adoption and the contingency factors which contributed to Adopting ABC. This section reviews some of these studies that investigated the influence of contingency factors on ABC adoption, the industry area of each study, which contingency factors were considered in each study, what research methodology was utilized for data collection, and the outcome conclusion explaining to what extent does a contingency factor affects ABC adoption.

Van Nguyen (1997), Compared the features of companies that had adopted ABC system to those that didn’t. This comparison was based on information collected from more than one hundred and twenty manufacturing companies. The analyzed features were sorted as Company characteristics and business environment factors, these features included production diversity, cost structure, level of competition, production complexity and size of the business unit, the author based the study relating to the issues companies have faced while adopting ABC, the author developed five hypotheses, and it concluded that there were

substantial differences existed in terms of production complexity, size of the business unit and level of competitive intensity of the firms that adopted ABC system.

Furthermore, **Bjørnenak (1997)**, investigated the adoption of ABC in Norway by developing a theoretical framework based on general diffusion theory. The framework was adapted to create a temporary model that illustrates the diffusion process of ABC. A survey of 75 general manufacturing companies in Norway was conducted, and the study found that ABC was adopted by almost 40% of the companies as a principle, meaning that it was either put into practice or intended to be. The study analyzed several factors, such as cost structure, existing costing system, competition, and product diversity for their relationship with ABC adoption, and found that cost structure was the only statistically significant factor. Although companies with prior knowledge of ABC were larger than those without such knowledge, differentiation on the basis of size could not be made between companies that adopted ABC and those that did not have knowledge about the ABC system.

Krumwiede (1998), conducted a survey of manufacturing companies in the United States to investigate the impact of contingency factors on ABC adoption. The study defined six stages of ABC adoption and examined several factors that may influence the adoption levels. These factors included training level, clarification of objectives, top management support, cost distortion, number of ABC use purposes, non-accounting ownership, quality management, quality of information technology, cost structure, lean production systems, size of the business unit, and cost information usefulness. The study concluded that there is a significant relationship between training level and top management support and the adoption of ABC.

Malmi (1999), conducted a study to examine the impact of contingency factors on the adoption of ABC by manufacturing and non-manufacturing firms in Finland. The study defined ABC adopters as those firms who either implemented or were currently implementing ABC. The research analyzed the influence of factors such as cost structure,

competition, company size, product/service diversity, and business strategy on ABC adoption. The study found a significant correlation between the adoption of ABC and the size of the business unit and the competition business strategy.

In a study conducted by **Brown (2004)** in Australia, the influence of contingency factors on ABC adoption in both manufacturing and non-manufacturing companies was investigated. The study examined various factors, such as top management support, cost structure, organizational size, internal support, use of consultants, company product diversity, and product complexity, and their effects on ABC adoption. The results indicated a positive association between top management support and the adoption of ABC.

Schoute (2004), conducted a study aimed at analyzing the effect of various factors such as product diversity, competition, organizational size, competitive strategy, and business strategy on the adoption of ABC. The research was based on a cross-sectional survey of 225 mid-sized manufacturing companies in the Netherlands. According to the results, companies with higher levels of product diversity were more inclined to adopt ABC compared to companies with standardized production processes. The study concluded that product diversity has a significant influence on the adoption of ABC.

Abusalama (2008), conducted research on the impact of contingency factors on ABC adoption in the US industrial sector. The study suggested that there are two distinct sets of variables that affect the adoption of ABC. The first set includes "contingent variables," which make ABC adoption suitable for the company. The second set includes the company's capacity or willingness to address the barriers and challenges associated with adopting ABC. The study concluded that there is a strong association between contingent variables and ABC adoption.

Majid (2008), discussed the benefits and challenges of adopting ABC in two Malaysian companies. Despite the widespread implementation of ABC in Malaysian firms, most of the

obstacles hindering its adoption are associated with management rather than technical aspects. The study identified several factors that contribute to the successful implementation of ABC, including streamlining the implementation process, ensuring all affected employees comprehend and actively support the implementation process, receiving top management support, and sourcing appropriate ABC software.

Moreover **Aldukhil (2012),** Focused on the development and testing of a model for successfully adopting ABC, The model was created to investigate the relationship between technological and organizational aspects, as well as management evaluations of overall ABC performance, The survey approach was used to gather data for the research from both ABC adopters and non-adopters, the data were related to business types, the unit of analysis was the business unit, the results showed that ABC adoption rate was lower that what was reported, testing the model showed that ABC success is significantly influenced by several factors: non-accounting ownership, training, and differentiation strategy.

Reynolds (2013) explored factors ABC (Product size and diversity, Competition, Information technology, top management support, organizational culture, and training) and tried to identify any other significant factors using semi-structed interviews, 13 interviews were carried with representatives from manufacturing organizations in south Africa, the study summary found that management support, identification of the correct ABC software prior to ABC implementation, and positive user attitudes might facilitate successful ABC adoption in manufacturing organizations.

Elagili (2015) focused on the identification and assessment of the importance of ABC adoption in the cement industry in Libya, the research included eight adoption factors (top management support, size of the organization, overhead costs and cost structure, intensity of the competition, innovation, internal champion support, product diversity and manufacturing flexibility and complexity, and usefulness and importance of cost information), the study

utilized interview questions to assess these factors, and concluded that these factors had a positive and direct relationship with ABC adoption.

Jusoh (2015), conducted a study to investigate the impact of six contingent factors on the adoption of ABC in Iranian manufacturing companies. These factors included cost structure, organizational size, product diversity, business strategy, information technology, and competition. The study utilized a questionnaire-based survey that was distributed to the chief financial officers of these companies. The research examined the relationships between environmental and technological factors and the diffusion of ABC, utilizing binary logistic regression models. Based on the diffusion stage, the study revealed a relationship between the diffusion of ABC and the contingent factors. The conclusion emphasizes the importance of understanding how contingent factors influence various stages of ABC diffusion to enhance ABC implementation in organizations by cost accountants or management.

Alshamlan (2021) Studied the impact of contingent factors on costing systems in non-manufacturing companies in the United Kingdom, since costing systems provide cost information that helps improving decision-making quality and therefore; financial and non-financial performances, the study utilized interviews and questionnaire, and the results showed that differentiation strategy, service diversity, competition, and cost structure had a positive and direct relationship with adopting ABC.

Khalid (2005) collected data from 39 out of the top 100 firms in Saudi Arabia using a questionnaire survey, the data illustrated that there is a positive relationship between product diversity, firm size and ABC adoption, however; data did not show how ABC adoption can be led by high level of overhead costs.

Al-Nuaimi (2018), conducted a study in Iraq to investigate the relationship between ABC implementation and contingency factors, including organizational culture, organizational structure, information technology, organizational performance, ABC implementation, and

competition, among Iraqi banks. The study was based on the contingency theory framework. Self-administered questionnaires were distributed to account managers, branch managers, and chief accountants from 402 bank branches. The collected data showed that there is a significant association between information technology, organizational culture, and ABC implementation.

Nassar (2013), conducted a study on the influence of contingency factors on ABC adoption in industrial companies in Jordan. The research found that adequate training facilitates ABC adoption and increasing numbers of product variants and a greater proportion of overhead costs are influential factors that motivate the adoption of ABC. Moreover, **Albrrishi (2020),** compared ABC adoption between the manufacturing and service sectors in Jordan, and the results showed that environmental and technological factors have a positive impact on ABC adoption.

Durgham (2007) assessed the availability of the required factors to successfully implement ABC in governmental Hospitals in the Strip of Gaza - Palestine, the study indicated that the diversity and complication of therapeutic services, Diversity of supporting activities, high management directives, competition, and availability of accounting systems are essential to implement ABC systems. The study recommended establishing independent cost accounting departments and implementing ABC since they provide accuracy in cost data and facilitate the decision-making process and help with planning and control.

Martin (2017) investigated to ascertain reasons for not adopting ABC in the medium and large firms in Ireland, the study found that the level of Information Technology in firms was not a key factor for non-adoption. Also, **Aljabr (2020)** Examined the kay factors that affected adopting ABC in 200 manufacturing companies in Saudi Arabia, the study utilized a computerized questionnaire survey for data collection, the study concluded that ABC adoption is not affected by Information Technology quality and Indirect Costs.

Having reviewed the most relevant studies that investigated the impact of contingency factors on ABC adoption, it is worth saying that the current study contributes to the existing body of knowledge by filling the theoretical gap in literature from twofold. this study examines the impact behavioral and organizational factors **(**Top management support, Training & Qualification, Service diversity & complexity, Overhead costs & cost structure) on ABC adoption using technological factors as mediation effect, and most of the previous empirical studies investigated on manufacturing sector, this study examines the impact of contingency factors on service sector specially health sector.

2.11. Hypotheses and Model Development:

2.11.1 Contingency Factors (Top Management Support, Training & Qualification, Service Diversity & Complexity, Overhead Costs & Cost Structure, Information Technology Readiness) and ABC adoption:

2.11.1.1 Relationship Between ABC Adoption and Top Management Support:

Several studies have emphasized the importance of top management support for successful adoption of activity-based costing (ABC) (Shields, 1995; Foster, 1997; Krumwiede, 1998; Morrow, 1994; Correia, 2008; Liu, 2007). Capital and commitment from top management are essential for dealing with possible challenges and conflicts during the implementation process, and for effectively communicating this support to the organization. Successful ABC adoption also requires effective communication at all levels, and a clear understanding of the benefits of the new system over the current system (Liu, 2007).

However, a study by Taba (2005) suggests that top management support may not necessarily provide continuous support for ABC adoption, but rather facilitate the adoption process. The hypothesis formulated in this study builds upon the findings of other studies (Brown, 2004; Liu, 2007; Majid, 2008; Elagili, 2015; Jusoh, 2015), emphasizing the importance of top management support in ABC adoption:

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

2.11.1.2 Relationship Between Training & Qualification and ABC Adoption:

According to Ehlers (2007), training is essential for improving employee commitment and motivation, thereby increasing organizational capacity for ABC adoption. Shields (1995) categorized training into three main areas: design, implementation, and usage, and found that successful ABC adoption is significantly associated with implementation training. Foster (1997) also reported that implementation training is crucial for ABC adoption. Similarly, Krumwiede (1998) emphasized the importance of training for effective ABC implementation. However, Reynolds (2013) found no positive relationship between training and ABC adoption. Therefore, this study proposes that training can either hinder or enhance ABC adoption, and the formulated hypothesis is based on previous research:

Hypothesis 2: Training, Qualification and Information Technology Readiness are positively associated with ABC adoption among PPHs.

2.11.1.3 Relationship Between Service Diversity & Complexity and ABC Adoption:

The literature indicates that organizations with diverse product lines benefit from using ABC to allocate overhead costs accurately. ABC is essential to accurately measure costs associated with varied consumption of resources and costs that come with diverse product lines. Failure to adopt ABC can lead to cost distortions and inaccurate cost measurement and decision-making. Implementation cost and complexity have been identified as the main reasons why some organizations do not adopt ABC. The hypothesis of this study is based on the previous research that supports the need for ABC in organizations with diverse product lines. (Schoute, 2009; Doyle, 2008; Cooper, 1988; Brown, 2004; Kaplan, 1998; Jusoh, 2015; Malmi, 1999; Van Nguyen, 1997; Alshamlan, 2021)

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

2.11.1.4 Relationship Between Overhead Costs & Cost Structure and ABC Adoption:

Brown (2004), Kaplan (1998), Jusoh (2015), Malmi (1999), Schoute (2004), Van Nguyen (1997), and Alshamlan (2021) found that overhead costs can distort total cost calculation and lead to inefficiencies, recommending the adoption of advanced cost accounting systems like ABC, especially for organizations with high overhead costs. These studies also highlighted the positive relationship between using ABC and high overhead costs. Therefore, this study's hypothesis is based on previous research by Brown (2004), Liu (2007), Majid (2008), Elagili (2015), and Jusoh (2015) that suggests a positive impact of ABC adoption on accurate allocation of overhead costs to products, the hypothesis formulated in this study was built on (Brown, 2004; Liu, 2007; Majid, 2008; Elagili, 2015; Jusoh, 2015) it is posited that:

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

2.11.1.5 Relationship Between Information Technology Readiness and ABC Adoption:

ABC is crucial for data processing and collection with advanced IT, and its efficiency is enhanced by the availability of IT, as noted by Cooper (1988), Reeve (1996), Cagwin (2002), Clarke (1999), and Nanni (1992). The integration of advanced technology and investment in good and reliable technology are essential for successful ABC adoption, as mentioned by Sohal (1998). The benefits of adopting ABC outweigh the cost of investing in technology. Elhamma (2015) recommends investing in IT to increase ABC adoption among Moroccan businesses. Additionally, Doyle (2008) found that underdeveloped IT systems hindered the effective implementation of ABC in Irish hospitals.

A few studies have investigated at the correlation between IT use and ABC adoption, but the findings have been inconsistent. For example, Albrrishi (2020), could not find any significant

correlation between the availability of IT resources like software and the adoption of ABC. therefore, the hypothesis formulated in this study was built on (Brown, 2004; Liu, 2007; Majid, 2008; Elagili, 2015; Jusoh, 2015) it is posited that:

Hypothesis 5: Information Technology Readiness are positively associated with ABC adoption among PPHs.

2.11.2 Operationalization of Study Variables

The study proposes a model to examine the impact of contingency factors and information technology readiness on the adoption of ABC among PPHs. The model includes four dimensions of contingency factors and one moderator variable, which are hypothesized to have an impact on ABC adoption among PPHs based on previous literature. are measured using six indicators as shown in Appendix B.

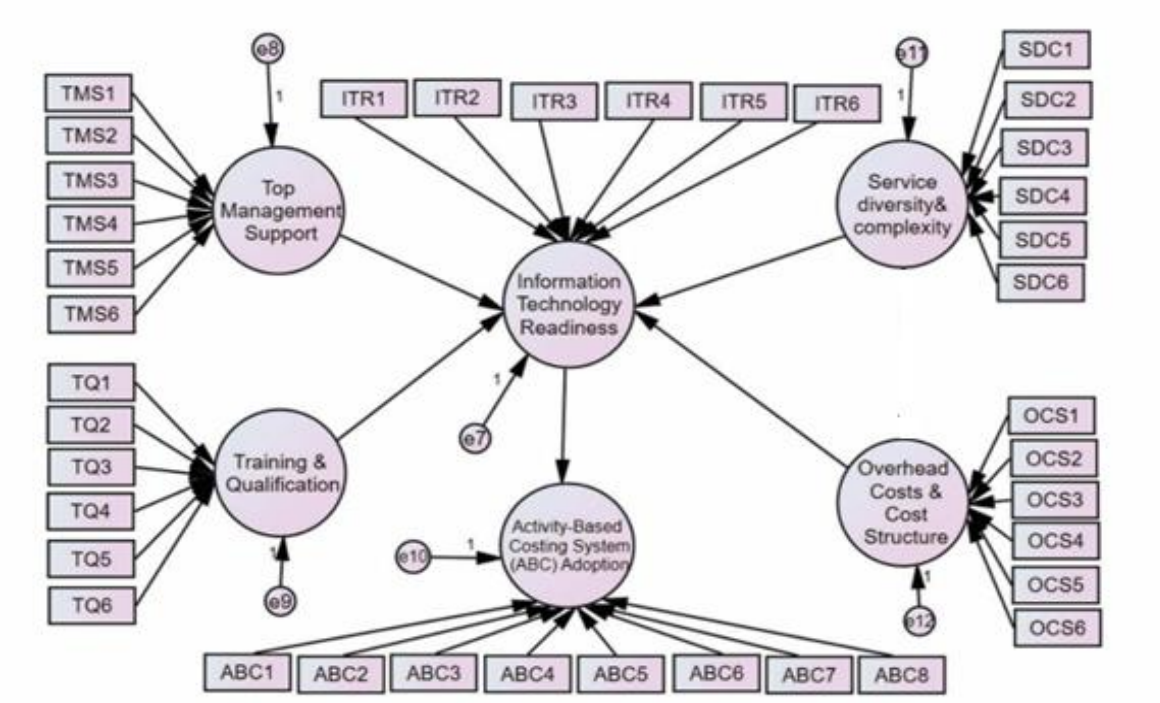

Figure 2.9: Operationalization of Study Variables.

Figure 2.9:Operationalization of Study Variables

Source: SPSS Statistic.

Chapter Three

Research Methodology

3.1. Overview

The preceding chapter discussed the conceptual framework for the study that is based on contingency theory. This chapter aims to expound on and justify the research methodology. Methodology can refer to the theoretical analysis of methods suitable for a field of study or to the set of methods and principles particular to a particular branch of knowledge. Thus, a well-designed methodology is vital to ensure that the data collected for research is valid and reliable (Silverman, 2005). The chapter will cover various aspects such as the selection of the research approach, identification of the population and sample, data collection method, development of the research instrument, statistical data analysis techniques, and ethical considerations that need to be taken into account.

3.2. Research 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.

3.3. 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.

3.4. Data Collection Method

Having reviewed the related literature, developed the conceptual model of the study, determined the population and sample of the study, it is time to collect the data regarding variables of the study.

In this study, quantitative methods were utilized. Electronic questionnaires as an instrument of data collection since they were more efficient in terms of cost, time, and effort than the other methods of data collection for the qualitative data. Specifically, it was directed at the study sample (6 private hospitals) using a Google Form. To validate the descriptive and inferential statistical data analysis, a total of 105 questionnaires were received. The APEX hospital information system (HIS) program and the SAP enterprise resource planning (ERP) program were used to get data from IAH data for the first half of 2022.

3.5. Development of Research Instrument "Questionnaire"

In order to collect the primary data, a fully-structured questionnaire is developed. The questionnaire includes a cover page, and three parts. The cover page states the main objective of the study and assures the confidentiality of data. The three parts of the questionnaire Include the study variables (Personal Information, Contingency Factors, and ABC Adoption).

- Part One: Personal Information

This part is developed to collect data on Personal Information. it consists of the following seven items: Workplace: (7 categories), Current job: (4 categories), Qualification (4 categories), Scientific specialization (5 categories), professional certificates (6 categories),

Professional experience in the field of hospitals (3 categories), Department responsible for cost accounting (4 categories)

- Part Two: Contingency Factors

This part is developed to collect data on respondents' perceived level of Contingency Factors. It consists of (30)items that are equally distributed to five dimensions:

1. Top management support: (6 items).
2. Training & Qualification: (6 items).
3. Service diversity & complexity: (6 items).
4. Overhead costs & cost structure: (6 items).
5. Information Technology Readiness: (6 items).

- Part Three: ABC Adoption

This part is developed to collect data on respondents' perceived level of ABC adoption. It consists of (8)items.

A five-point Likert scale, ranging from a minimum of 1 "Strongly Disagree" to a maximum of 5 "Strongly Agree", is used in the last two parts of the questionnaire. All items that are used to measure the different constructs in these two parts are positively phrased. Thus, no items need to be reversed. The levels of contingency factors and ABC adoption are qualitatively evaluated according to the scale shown in Table 3.1.

Table 3.1: Qualitative Evaluation

Mean Value	Qualitative Evaluation
1.00–1.80	Very low
1.80–2.60	Low
2.60–3.40	Moderate
3.40–4.20	High
4.20–5.00	Very high

3.6. The Validity and Reliability of Research Instrument

To ensure the validity and reliability of the study instrument (the questionnaire), two approaches are utilized: validity and reliability measurements. Validity refers to the extent to which the scale accurately describes or estimates what it is intended to measure, and a high degree of validity indicates the absence of systematic errors in the study instrument, aligning with the assumed and actual concept of the scale. Meanwhile, reliability is the degree to which the study instrument can be trusted to produce consistent results upon repeated use. DeVellis (2016) established the criteria for validity through arbitrators and internal consistency. Similarly, stability is also verified to ensure the reliability of the instrument.

3.6.1 Content Validity

Assessing the validity of the survey instrument is an essential criterion for determining the credibility of the research findings by linking it to the theoretical underpinnings of the study and evaluating the scientific rigor of the questionnaire design (DeVellis, 2016). To ensure the validity of the questionnaire, it was subjected to expert review, and their feedback was incorporated into the final version of the instrument.

3.6.2 Internal Consistency Validity

It measures the validity of the internal consistency between the paragraph and the total score of the dimension through the Pearson correlation coefficient test, and it is judged that there is internal consistency between the paragraph and the total score of the dimension through the significance level of the test (if the significance level is less than 0.05, we conclude that there is a correlation or consistency between the paragraph and the total score for the dimension).

Table (3.2) and table (3.3) show the significance level of all items is less than 0.05, we conclude that the questionnaire is characterized by Internal consistency validity.

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

3.6.3 Reliability

Reliability is defined as “the stability of the results and not changing them if they were redistributed to the same sample during a specified period of time several times”. In other words, if the test was repeated in the same conditions and the same sample, the same results or close to them would be given. The methods range from (0-1), and whenever they are close to 1 true, it indicates a high Reliability, and the minimum acceptance is 0.7.

The Table 3.4 shows the Cronbach Alpha coefficients for the various constructs of the study. The coefficients obtained for each construct are higher than 0.7, indicating that the research instrument is reliable.

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 & complexity	6	0.736
Overhead costs & cost structure	6	0.848
Information Technology Readiness	6	0765
ABC adoption	**8**	**0.838**

3.7. Statistical Data Analysis Techniques

This study utilized the Statistical Package for Social Sciences-SPSS V.25 for processing and analyzing data obtained through the questionnaire. The following statistical treatments were used for data processing:

✓ Pearson's correlation coefficient to measure internal consistency validity.

✓ Cronbach's alpha coefficient to measure data stability.

✓ Mean to determine the level of response to the questionnaire.

✓ Standard deviation to identify the extent of deviation of responses for each paragraph.

✓ Linear regression to test hypotheses.

In addition, Microsoft Excel 2016 was used to process and analyze data obtained from the APEX and SAP programs.

3.8. Ethical Considerations

Four ethical considerations regarding this study are worth discussing. First, respondents were informed of the main objective of the study at the beginning of the questionnaire. Second, respondents were told that the responses they provide are confidential and are only used for scientific purposes. Third, no intentional misrepresentation of data is made by the researcher. Finally, the researcher affirms no conflict of interest, what so ever, with any other party.

Chapter Four

Data Analysis and Discussion

4.1. Overview

This chapter is devoted to present data analysis and discussion. More specifically, it consists of descriptive statistical analysis, and inferential statistical analysis the questionnaire. as well as analysis of (IAH) data. Moreover, this section presents the discussion of the results presented through the study analysis.

4.2. Descriptive Statistical Analysis

This section presents descriptive statistical analysis. More specifically, Personal Information are analyzed using frequencies and percentages. In addition, the levels of contingency factors and ABC adoption are analyzed using means and standard deviations.

4.2.1 Personal Information

Table 4.1: Personal Information

Variable	Category	Frequency	Percentage (%)
Workplace	Istishari Arab Hospital	31	29.5
	Ibn Sina Specialized Hospital	19	18.1
	Specialized Arab Hospital	27	25.7
	Nablus Speciality Hospital	11	10.5
	Hclinic Hospital	8	7.6
	Al-Israa Specialized Hospital	9	8.6
Current job	Chief Executive Officer	3	2.9
	Chief Financial Officer	7	6.7
	Heads of Department	14	13.3
	Accountant	81	77.1
Qualification	Diploma	9	8.6
	Bachelor's	92	87.6
	Master's	2	1.9
	PhD	2	1.9
Scientific specialization	Accounting	82	78.1
	Business Management	11	10.5
	Banking and Financial Sciences	10	9.5

Table 4.1: Personal Information

Variable	Category	Frequency	Percentage (%)
	Health Management	2	1.9
professional certificates	CMA	5	4.8
	CPA	1	1
	IACPA	5	4.8
	None	94	89.5
Professional experience in the field of hospitals	0 to 5 years	54	51.4
	5 to 10 years	33	31.4
	more than 10 years	18	17.1
Department responsible for cost accounting	Department of financial management	89	84.8
	Patient Accounting Department	16	15.2
ABC adoption	Partially applied	60	47.1
	Not Applicable	45	42.9

4.2.2 Level of Contingency Factors

This section analyzes, in a descriptive way, respondents' perceived level of Contingency Factors (Top management support, Training & Qualification, Service diversity & complexity, Overhead costs & cost structure, Information Technology Readiness)

4.2.2.1 Dimension 1: Top Management Support

The descriptive statistics of Top management support are shown in Table 4.2. The results indicate that this dimension consists of six items. When looking at each of the six items making up this dimension, it is clear that TMS4 has the highest mean value whereas TMS6 has the lowest mean value. The overall mean value of this dimension is (3.27) out of a possible maximum of 5, with a moderate qualitative level.

Table 4.2: Descriptive Statistics of Top management support

Item	Mean Value	Standard Deviation	Qualitative Level
TMS1: Hospital Management is interested in forming a team to adopt ABC.	3.37	0.943	Moderate
TMS2: Hospital Management have adequate information about ABC	3.16	0.921	Moderate
TMS3: Hospital Management sees that ABC output is better than that from TCS.	3.44	1.037	High
TMS4: Hospital Management have the Scientific and Practical Qualifications that have expertise in Advanced Accounting Systems	3.68	0.838	High
TMS5: Top Management employs time and effort to adopt ABC.	3.07	1.094	Moderate
TMS6: Top Management provides the Resources needed for ABC Adoption.	2.91	1.039	Moderate
Total	3.2714	.72988	Moderate

4.2.2.2 Dimension 2: Training & Qualification

The descriptive statistics of Training & Qualification are shown in Table 4.3. The results indicate that this dimension consists of six items. When looking at each of the six items making up this dimension, it is clear that TQ3 has the highest mean value whereas TQ4 has the lowest mean value. The overall mean value of this dimension is (3.10) out of a possible maximum of 5, with a moderate qualitative level.

Table 4.3: Descriptive Statistics of Training & Qualification

Item	Mean Value	Standard Deviation	Qualitative Level
TQ1: Accountants acquire Professional Training Certificates.	3.49	0.845	High
TQ2: Hospital Management have formed a team for ABC Training.	3.03	0.925	Moderate
TQ3: Employees commit to training regularly.	3.70	0.833	High
TQ4: Hospital have Professional Experienced Employees to Adopt ABC.	2.65	0.888	Moderate
TQ5: Employees enroll in ABC Training	2.80	0.955	Moderate
TQ6: Hospital provides enough training for ABC Design and Objectives.	2.93	0.912	Moderate
Total	3.0984	0.58685	Moderate

4.2.2.3 Dimension 3: Service Diversity & Complexity

The descriptive statistics of Service diversity & complexity are shown in Table 4.4. The results indicate that this dimension consists of six items. When looking at each of the six items making up this dimension, it is clear that SDC4 has the highest mean value whereas SDC6 has the lowest mean value. The overall mean value of this dimension is (3.61) out of a possible maximum of 5, with a high qualitative level.

Table 4.4: Descriptive Statistics of Service Diversity & Complexity

Item	Mean Value	Standard Deviation	Qualitative Level
SDC1: TCS failure in accurately selecting each service costs promotes ABC Adoption.	4.00	0.572	High
SDC2: Service Diversity by Quantity requires ABC Adoption.	3.95	0.544	Moderate
SDC3: Service Diversity by Type requires ABC Adoption.	4.00	0.588	High
SDC4: Service Complexity and Advancement requires ABC Adoption	4.07	0.640	High
SDC5: The Provided Health	2.86	0.945	Moderate

Table 4.4: Descriptive Statistics of Service Diversity & Complexity

Item	Mean Value	Standard Deviation	Qualitative Level
Services are analyzed from time to time to get rid of the Services that don't benefit Patients.			
SDC6: The Hospital have a specialized Department to Determine the Cost of Services Provided for Patients.	2.76	0.838	Moderate
Total	3.6063	0.46232	High

4.2.2.4 Dimension 4: Overhead Costs & Cost Structure

The descriptive statistics of Overhead costs & cost structure are shown in Table 4.5. The results indicate that this dimension consists of six items. When looking at each of the six items making up this dimension, it is clear that OCCT6 have the highest mean value whereas OCCT3 has the lowest mean value. The overall mean value of this dimension is (3.38) out of a possible maximum of 5, with a moderate qualitative level.

Table 4.5: Descriptive Statistics of Overhead Costs & Cost Structure

Item	Mean Value	Standard Deviation	Qualitative Level
OCS1: Cost Accounting Department study and analyze hospital activities to determine factors the affect Costs.	3.30	0.982	Moderate
OCS2: Accountants can allocate direct costs for indirect cost for health services.	3.49	0.962	High
OCS3: Accurate Cost Driver can be selected for each Service provided.	2.97	0.914	Moderate
OCS4: ABC helps in Overhead Costs Allocation.	3.64	0.921	Moderate
OCS5: ABC Adoption saves time and effort needed to perform activities and therefore reduces costs.	3.22	0.920	Moderate
OCS6: ABC helps better and accurate Service Pricing.	3.64	0.982	High
Total	3.3762	0.71388	Moderate

4.2.2.5 Dimension 5: Information Technology Readiness

The descriptive statistics of Information Technology Readiness are shown in Table 4.6. The results indicate that this dimension consists of six items. When looking at each of the six items making up this dimension, it is clear that ITR1 has the highest mean value whereas ITR3 has the lowest mean value. The overall mean value of this dimension is (3.40) out of a possible maximum of 5, with a moderate qualitative level.

Table 4.6: Descriptive Statistics of Information Technology Readiness

Item	Mean Value	Standard Deviation	Qualitative Level
IT1:.The Hospital have an Electronic Accounting System that provides the necessary and Detailed data for ABC Adoption.	3.90	0.831	High
IT2: The Current Accounting Systems support selecting Indirect Costs.	3.52	0.942	High
IT3: The Current Accounting Systems support selecting Cost Drivers for each Service.	2.71	0.829	Moderate
IT4: The Current Accounting Systems support Cost Pools data collection for each service.	3.48	0.878	High
IT5: The Current Accounting Systems support selecting Activities for each Service.	3.28	0.915	Moderate
IT6: The Hospital made Information Technology Resources available for ABC Adoption.	3.50	0.822	High
Total	**3.3968**	**0.59033**	Moderate

4.2.2 Level of ABC Adoption

The descriptive statistics of ABC adoption are shown in Table 4.7. The results indicate that this dimension consists of eight items. When looking at each of the eight items making up this dimension, it is clear that ABC3 & ABC8 have the highest mean value whereas ABC2

has the lowest mean value. The overall mean value of this dimension is (3.14) out of a possible maximum of 5, with a moderate qualitative level.

Table 4.7: Descriptive Statistics of ABC Adoption

Item	Mean Value	Standard Deviation	Qualitative Level
ABC1: The Hospital have a plan for ABC Adoption.	2.77	0.812	Moderate
ABC2: ABC Adoption Objectives are clear for all Participants.	2.66	0.770	Moderate
ABC3: The Hospital have the infrastructure and resources necessary for ABC Adoption.	3.63	0.763	High
ABC 4: ABC Team have the qualification and skillset necessary to adopt ABC.	3.52	0.695	High
ABC5: ABC Adoption have full and continuous Top Management Support.	2.75	0.806	Moderate
ABC6: Activities are distributed on Departments and Activity Centers in the Hospital to adopt ABC.	2.75	0.806	Moderate
ABC7: Similar Activities are defined in the Hospital to form Activity Centers for ABC Adoption.	3.47	0.844	High
ABC8: Cost Accounting Department select and analyze the activities associated with providing health services.	3.63	0.835	High
Total	3.1476	0.54231	Moderate

4.3. Inferential Statistical Analysis

This section presents inferential statistical analysis. More specifically, the study hypotheses are formally tested using the multiple linear regression analysis technique

4.3.1 Testing For Normality

Normality is tested using Shapiro-Wilk test, it can be accepted that the normality assumption is met through the significance level of Shapiro-Wilk test (if the significance level is less than 0.05, we conclude that there is normality). Table (4.8) show the significance level of all variables are less than 0.05, we conclude that the normality assumption is met in this study. Figures (4.1), (4.2), (4.3), (4.4), (4.5) and (4.6) show the histograms and normal curves of the tests. It can be seen that in all cases, the normal curve is symmetrical, bell-shaped.

Table (4.8): Tests of Normality "Shapiro-Wilk"

	Statistic	df	Sig.
Top Management Support	.967	105	.011
Training & Qualification	.969	105	.014
Information Technology Readiness	.905	105	.000
Service diversity & complexity	.907	105	.000
Overhead Costs & Cost Structure	.866	105	.000
Activity-Based Costing System (ABC) Adoption	.938	105	.000

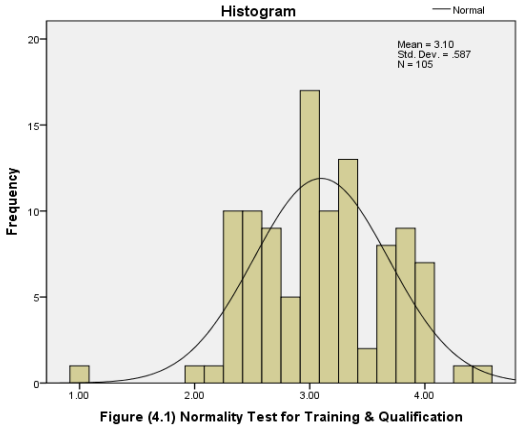

Figure (4.1) Normality Test for Training & Qualification

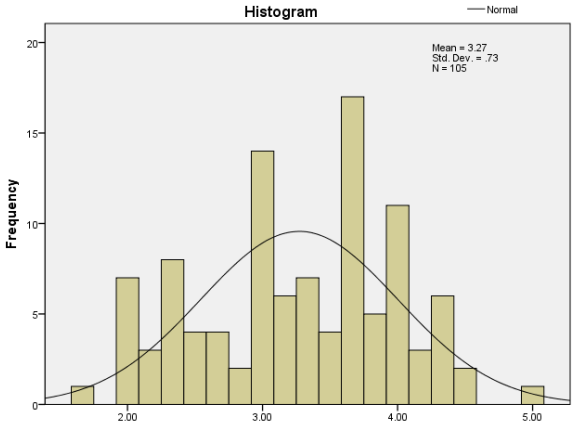

Figure (4.2) Normality Test for Top Management Support

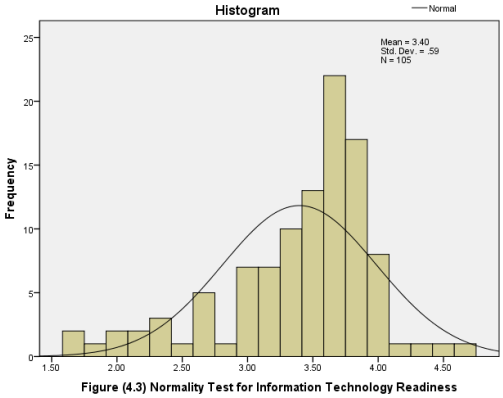

Figure (4.3) Normality Test for Information Technology Readiness

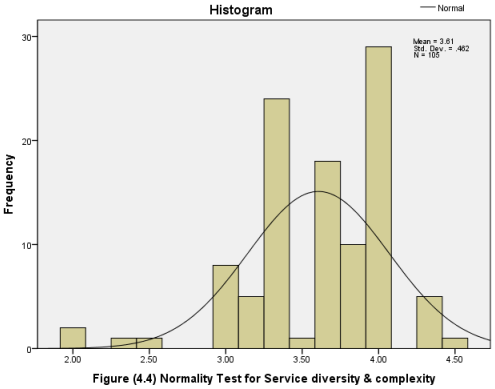

Figure (4.4) Normality Test for Service diversity & complexity

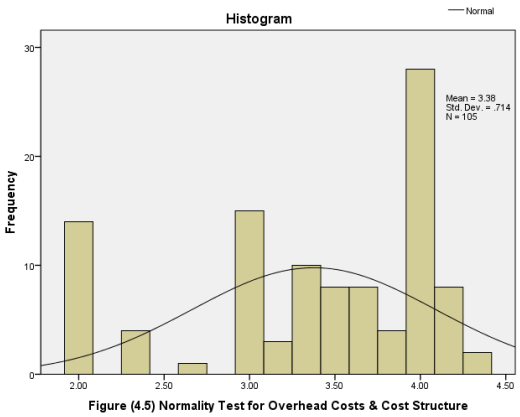

Figure (4.5) Normality Test for Overhead Costs & Cost Structure

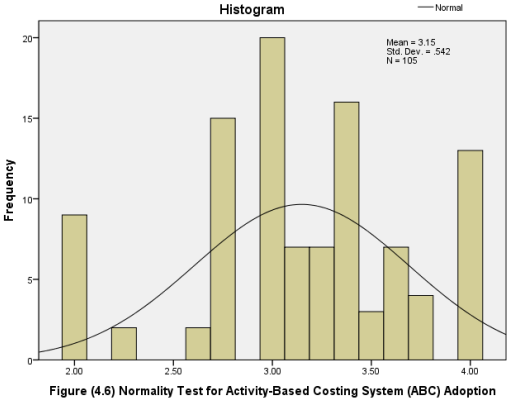

Figure (4.6) Normality Test for Activity-Based Costing System (ABC) Adoption

4.3.2 Correlation Matrix

The correlation matrix between the dependent variable (ABC adoption) and the five independent variables (Top management support, Training & Qualification, Service diversity & complexity, Overhead costs & cost structure, Information Technology Readiness) is shown in Table 4.8. The correlation matrix shows that the Pearson correlation coefficients of (Service diversity & complexity, Overhead costs & cost structure and Information Technology Readiness) are statistically significant at the 0.05 level, indicates that these dimensions is positively correlated with ABC adoption. But the Pearson correlation coefficients of (Top management support, Training & Qualification,) aren't statistically significant at the 0.05 level.

Table 4.9: Correlation Matrix

	TMS	TQ	SDC	OCCS	ITR	ABC
TMS	1					
TQ	0.538**	1				
SDC	0.101	0.116	1			
OCCS	0.335**	0.163	0.375**	1		
ITR	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.

Based on the table Table 4.8 the correlation matrix, it appears that there are varying degrees of correlation between the independent variables. For example, there is a moderate positive correlation between TMS and TQ (0.538, $p < 0.01$) and OCCS (0.335, $p < 0.01$), indicating with stronger top management support are more likely to invest in employee training and

have lower overhead costs. However, the correlation between TMS and SDC is weak (0.101, $p > 0.05$), suggesting that top management support may not be as strongly related to service diversity and complexity.

Similarly, TQ shows a moderate positive correlation with SDC (0.538, $p < 0.01$) and weak positive correlations with OCCS (0.116, $p > 0.05$), ITR (0.213, $p < 0.05$), and ABC adoption (0.107, $p > 0.05$). This suggests that invest more in employee training may be better equipped to handle diverse and complex services, and may have higher levels of information technology readiness and ABC adoption.

4.4. Hypotheses Testing

In this section, the five hypotheses already developed are formally tested.

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

The linear regression analysis is shown in Table 4.10. The results indicate that the TMS significance level is higher than 0.05, so top management support is not statistically significant at the 0.05 level. and Information technology readiness significance level is Less than 0.05, So ITR is statistically significant at the 0.05 level. Can conclude that Information technology readiness mediates the relationship between top management support and ABC adoption among PPHs.

Table 4.10: Linear Regression Analysis Results of ITR Mediates the Relationship Between TMS & ABC

ITR mediates the relationship between TMS & ABC	R	R^2		B	t	Sig.
	0.858	0.736	TMS	0.038 -	0.968-	0.335
			ITR	0.798	16.551	0.000

H.2: Training & Qualification and Information Technology Readiness are Positively Associated with ABC Adoption Among PPHs.

The linear regression analysis is shown in Table 4.11. The results indicate that the training & qualification significance level is higher than 0.05, so the training & qualification is not

statistically significant at the 0.05 level. and information technology readiness significance level is Less than 0.05, So Information technology readiness is statistically significant at the 0.05 level. Can conclude that Information technology readiness mediates the relationship between training & qualification and ABC adoption among PPHs.

On the other hand, the regression coefficient of ITR on ABC adoption is highly significant (B = 0.802, t = 16.885, p < 0.001), indicating that ITR is a strong predictor of ABC adoption among PPHs. The R-squared value of the regression model (0.740) suggests that a significant proportion of the variance in ABC adoption can be explained by the combined effects of TQ and ITR.

Taken together, these results provide strong evidence to support the hypothesis that ITR mediates the relationship between TQ and ABC adoption among PPHs. This suggests that PPHs that invest in employee training and have high levels of ITR are more likely to adopt ABC than those that do not. These findings have important implications for healthcare organizations seeking to improve their cost accounting practices and financial performance.

Table 4.11: Linear Regression Analysis Results of ITR Mediates the Relationship Between TQ & ABC

	R	R^2		B	t	Sig.
ITR mediates the relationship between TQ & ABC	0.860	0.740	TQ	- 0.073	- 1.532	0.129
			ITR	0.802	16.885	0.000

H.3: Service Diversity & Complexity and Information Technology Readiness are Positively Associated with ABC Adoption Among PPHs.

Based on the results shown in Table 4.12 of the linear regression analysis, it can be concluded that ITR mediates the relationship between SDC and ABC adoption among PPHs. The results indicate that SDC is not statistically significant at the 0.05 level (B = 0.173, t = 2.788, p = 0.006), while ITR is highly significant (B = 0.738, t = 15.180, p < 0.001). Moreover, the t-value of ITR is larger than the t-value of SDC, indicating that ITR has a stronger effect on ABC adoption than SDC.

These findings suggest that PPHs that invest in information technology and have high levels of ITR are more likely to adopt ABC, even when controlling for the effects of SDC. This highlights the importance of information technology in healthcare organizations and supports the notion that ITR is a key factor in driving ABC adoption.

Table 4.12: Linear Regression Analysis Results of ITR Mediates the Relationship Between SDC & ABC

	R	R^2		B	t	Sig.
ITR mediates the relationship between SDC & ABC	0.867	0.752	SDC	0.173	2.788	0.006
			ITR	0.738	15.180	0.000

H.4: Overhead Costs & cost Structure and Information Technology Readiness are Positively Associated with ABC Adoption Among PPHs.

The linear regression analysis is shown in Table 4.13. The results indicate that the overhead costs & cost structure significance level is greater than 0.05, so overhead costs & cost structure is not statistically significant at the 0.05 level. and Information technology readiness significance level is Less than 0.05, So Information technology readiness is statistically significant at the 0.05 level. and t value of ITR is greater than t value of OCCS. Can conclude that Information technology readiness mediates the relationship between overhead costs & cost structure and ABC adoption among PPHs.

Table 4.13: Linear Regression Analysis Results of ITR Mediates The Relationship Between OCCS & ABC

	R	R^2		B	T	Sig.
ITR mediates the relationship between OCCS & ABC	0.882	0.778	OCCS	0.229	4.499	0.000
			ITR	0.588	9.555	0.000

H.5: Information Technology Readiness are Positively Associated with ABC Adoption Among PPHs.

The simple linear regression analysis is shown in Table 4.14. The results indicate that the Information technology readiness significance level is Less than 0.05, So Information

technology readiness is statistically significant at the 0.05 level. The correlation coefficient is (0.856). Can conclude that Information Technology Readiness are positively associated with ABC adoption among PPHs.

Table 4.14: Simple linear Regression Analysis Results of ABC on ITR

Regression	R	R^2	B	T	Sig.
ABC on ITR	0.856	0.734	0.787	16.838	0.000

4.3 Hospital data analysis

4.4.1 Costing System that Applied in IAH:

The ABC system its new applied in some departments in IAH when pricing health services in the hospital.

4.4.2 Healthcare Pricing in IAH:

The price of health treatment services that are provided to the patient, the price is set after agreement with the coverage authorities based on other hospitals or analysis of the service in order to ensure profit and cover all costs. Therefore, overhead costs must be considered because these costs constitute the majority when setting a price for the service.

4.4.3 ABC Application in the Departments at IAH:

The following is a statement of the costs and activities of IAH based on the actual analytical and technical data and from the IAH accounts for the period from 01/01/2022 to 30/6/2022:

First Stage: Identify Activities

Direct costs:

- Direct inventory cost such as drugs, medical parts, disposables and other consumables.
- Direct services such as cost of laboratory, genetics, and radiology investigation.
- Accommodation in each department, which includes according IAH the direct labor cost of nurses and resident doctors employed and specialists in each department in addition to the depreciation of the beds.
- Cost of the procedures for each department.

Overhead costs:

There are two types:

- Departmental wide Overhead as salaries and fees of employees serve that are not in the direct labor.
- Hospital wide Overhead which includes expenditure on electricity, Water, Gas, Cleaning Expenses, Oxygen & Other Medical Gases, cost of depreciation of building, and other miscellaneous costs such as cost of Internet, Laundry, Food & Kitchen, Transportation, Garbage Disposal

Second Stage: Define the Cost Of Activities:

Direct Costs:

- Collect All of The Costs That Are Associated with Each Department, Including Those for Drugs, Medical Parts, Disposables, And Laboratory, Genetics, And Radiology Investigation, As Well As Other Consumables, Have A Look at The Data in The Table Below:

Table 4.15: Direct costs each department:

Department	Drug (NIS)	Disposable (NIS)	Service (NIS)	Medical Part (NIS)	Laboratory (NIS)	Radiology (NIS)	Genetics (NIS)
Cardiac Interventions	360,290	651,506	54,110	1,128,941	251,752	43,348	0
Cardiac Surgery	110,295	393,004	44,808	76,776	166,563	12,664	0
Internal Medicine	510,051	75,757	63,274	3,642	228,050	55,710	521
Orthopedics Surgery	101,053	201,649	22,970	1,136,275	68,687	77,081	0
ICU	238,004	299,464	57,554	25,757	110,568	28,832	0
Neuro-Surgery	201,621	288,479	23,734	409,984	190,808	111,569	0
General Surgery	65,882	322,479	6,516	19,709	76,770	108,370	0
Gastroenterologist	900,169	12,112	4,543	7,662	26,762	5,971	0
Pediatric, NICU, PICU	301,319	110,251	79,732	9,353	148,262	56,847	20,536
E.N.T interventions	20,948	98,937	342	17,521	12,704	4,629	0
Gyna and Obstetrical Surgery	55,570	233,237	2,500	398	35,848	2,027	490
Maxillo-Facial Surgery	10,412	9,749	601	23,933	9,609	2,598	0
Interventional Radiologist	5,835	66,883	500	276,501	12,730	1,606	0
Vascular Surgery	10,443	62,883	1,176	69,652	12,969	4,912	0
Oncology	20,811,080	229,691	77,924	0	988,632	4,732,727	727,409
Out Patient -Emergency	319,980	369,980	168,785	0	299,756	531,102	314,415
Total (NIS)	24,022,952	3,426,061	609,069	3,206,104	2,640,470	5,779,993	1,063,370

- Calculate the Standard Cost of Accommodation Day for All Departments by Allocating Nursing, Resident, And Depreciation Cost for Each Bed Per Day in Each Department Can Be Done by Following:

To determine how much each shift of a nurse costs, begin by adding in the nurse's average salary and leaves, then divide that number by the number of shifts in a month (there are 22), and the result is the cost of the shift. For further information, see the table that follows:

Table 4.16: the Cost of the Nurses' Shift.	
Nurses	
Category	Amount (NIS)
Average Salary	3,500
End of services	298.3
Annual Leave	300.2
Sick Leave	106.1
National Days	212.1
Total Cost / nurse	4,417
Shift cost	201

To calculate the cost of the nurse for each patient by factoring in the patient-to-nurse ratio, which states that nursing is usually responsible for a certain number of patients but that there are two different kinds of patients in the department. ICU and ward that different it's the responsible of nurse in each department, result its cost patient per day, look to the table below:

Table 4.17: The Cost of Nursing Patients Per Day

ICU Ratio	
Nurses	1:2
Nurse cost per Shift (NIS)	201
Per Patient per Day (NIS)	302

Ward Ratio	
Nurses	1:4
Nurse cost per Shift (NIS)	201
Per Patient per Day (NIS)	251

To determine how much each shift of a doctor costs, begin by adding in the resident and specialist doctor for average salary and leaves, then divide that number by the number of shifts in a month (there are 22), and the result is the cost of the shift. For further information, see the table that follows:

Table 4.18: the Cost of the Resident and Specialist Shift					
Resident		specialist -ICU		specialist -internal medicine	
Category.	Amount (NIS)	Category.	Amount (NIS)	Category.	Amount(NIS)
Average Salary	6,200	Average Salary	15,000	Average Salary	11,500
End of Services	-	End of Services	1082.3	End of Services	950
Annual Leave	354.33	Annual Leave	982.7	Annual Leave	809.6
Sick Leave	120.44	Sick Leave	360.9	Sick Leave	296.5
National Days	302.88	National Days	8121.8	National Days	473.1
Total Cost / nurse	6,978	Total Cost / Doctor	25,548	Total Cost / Doctor	14,029
Shift cost	317	Shift cost	1161	Shift cost	638

To calculate the cost of the doctor for each patient by factoring in shift day, but that there are two different kinds of patients in the department. ICU and ward that different it's the shift day in each department, result its cost patient per day, look to the table below:

Table 4.19: the Cost Per Resident and Specialist Patient Per Day			
Resident		Specialists	
ICU	1.5 per day	ICU Specialists	1 shift per day
Resident cost per Shift (NIS)	317	ICU cost per Shift (NIS)	1161
Per Patient per Day (NIS)	53	Per Patient per Day (NIS)	137
Internal	1 per day	internal Specialists	1 shift per day
Resident cost per Shift (NIS)	317	internal cost per Shift (NIS)	638
Per Patient per Day (NIS)	37	Per Patient per Day (NIS)	75

Depreciation calculation	
Ward	98,000
Cost / Day (NIS)	27
Depreciation calculation	
ICU	155,000
Cost / Day (NIS)	43

To calculate the depreciation cost for each bed by adding the total number of depreciations divided by the number of useful years (10 years) for theirs, but taking into account the fact that there are two distinct types of treated patients in the department. ICU and ward, result of

its dividend for 365 days in the year for depreciation cost per day, see the table below for more information: Table 4.20: depreciation cost per day

- Accommodation cost in each department, which can be calculate the direct labor cost of nurses and resident doctors employed and specialists after allocation cost in each department multiple the number of patients stay in IAH in addition to the depreciation of the beds multiple for 6 months see the table below:

Table 4.21: Accommodation Cost in Each Department

Department	Number of days patient stay (day)	Accommodation (NIS)
Cardiac Interventions	1,586	569,842
Cardiac Surgery	826	300,548
Internal Medicine	1,594	541,076
Orthopedics Surgery	1,462	535,647
ICU	650	376,419
Neuro-Surgery	1,650	480,141
General Surgery	1,155	337,581
Gastroenterologist	415	124,461
Pediatric, NICU, PICU	1,310	652,389
E.N.T interventions	388	116,685
Gyna and Obstetrical Surgery	301	91,629
Maxillo-Facial Surgery	255	78,381
Interventional Radiologist	58	21,645
Vascular Surgery	361	108,909
Oncology	4,656	1,345,869
Out Patient -Emergency	296	90,189
Total	16,963	5,771,411

- The cost of the procedure in each department by allocate all direct costs related to procedure actual working hour for each to calculate the actual cost for an hour in each section. Then allocate the cost to each procedure based on the actual time procedure took in the operating room in the table below. The details of procedure include the following:
  - ✓ Salaries and related such as Overtime, Vacation, Administrative Allowance, End of Service Benefit Expense related to operation.

- ✓ Other overheads which include expenditure on electricity, Water, Gas, Cleaning Expenses, Printing, and other miscellaneous costs such as cost of Internet, Laundry, Food & Kitchen, Transportation, Garbage Disposal related to operation.
- ✓ Depreciation for each medical equipment by adding the total number of depreciations divided by the number of useful years (10 years) for theirs, result of its dividend for 12 months then multiple 6 months for depreciation cost per operation.

For illustration, the following table can be used to calculate the costs of the operation theater, cardiac surgery, and Cath lab:

Table 4.22: the Costs of the Operation Theater, Cardiac Surgery, and Cath Lab:

Desc.	Operation Theaters	Cardiology	Cardiac Surgery
Salaries and related (NIS)	948,444	285,913	331,803
Other overheads (NIS)	526,304	60,162	42,608
Depreciation For Medical Equipment (NIS)	178,464	323,094	46,405
Total Cost (NIS)	1,653,213	669,169	420,816
Actual Working Hour	3,267.1	592.8	593.3
Cost / Hour	506	1,129	798

Table 4.23: the Costs of the Procedure in Each Department:

Department	Procedure (NIS)
Cardiac Interventions	606,166
Cardiac Surgery	266,784
Internal Medicine	15,402
Orthopedics Surgery	410,800
ICU	38,605
Neuro-Surgery	342,308
General Surgery	254,784
Gastroenterologist	6,407
Pediatric, NICU, PICU	37,210
E.N.T interventions	260,698
Gyna and Obstetrical Surgery	210,652
Maxillo-Facial Surgery	23,568
Interventional Radiologist	67,568
Vascular Surgery	77,120
Oncology	88,896
Out Patient -Emergency	0
Total	2,706,968

Direct cost for all departments that contain Direct inventory cost such as drugs, medical parts, disposables and other consumables, Direct services such as cost of laboratory, genetics, and radiology investigation and Accommodation in each department, Cost of the procedures for each department after allocation cost for each department.

Table 4.24: Direct Cost in Each Department:

Department	Direct cost (NIS)
Cardiac Interventions	3,103,982
Cardiac Surgery	1,078,763
Internal Medicine	1,493,483
Orthopedics Surgery	2,554,162
ICU	1,175,203
Neuro-Surgery	2,048,644
General Surgery	1,192,091
Gastroenterologist	1,088,087
Pediatric, NICU, PICU	1,415,899
E.N.T interventions	532,464
Gyna and Obstetrical Surgery	632,351
Maxillo-Facial Surgery	158,851
Interventional Radiologist	453,268
Vascular Surgery	348,064
Oncology	29,002,228
Out Patient -Emergency	2,094,207
Total	48,371,746

Overhead Costs:

Overhead costs related to the entire hospital is 15,100,610 NIS which as salaries and fees of employees serve that are not in the direct labor and overhead costs related to the entire hospital which includes expenditure on electricity, Water, Gas, Cleaning Expenses, Oxygen & Other Medical Gases, cost of depreciation of building, and other miscellaneous costs such as cost of Internet, Laundry, Food & Kitchen, Transportation, Garbage Disposal.

Third Stage: Define the Cost Drivers:

The most appropriate cost driver that is linked to the overhead cost for hospitalized patient is length of stay, therefore **number of days a patient stays** in the hospital is the cost driver in each department.

Fourth Stage: Define Volume of Cost Driver

At this stage, the overhead costs of each department as well as the number of patient days spent in each department were analyzed. In all, 16,963 patient days were analyzed across all departments over the six-month period.

Fifth Stage: Define Unit Cost Per Cost Driver

This step is a technical step in its entirety, by the assistance of technicians responsible for each activity of each department, and used the cost driver that they concluded in to allocate the costs of the pools to the activities, taking into account that the sum of the percentages for allocating each of the cost pools is equal to the correct one, according to the following measurement so the overhead cost to each department was calculated according to the following equation:

Overhead Cost = (Number of days patient stay / Total number of days patient stay) * Total overhead cost

Table 4.25: Overhead Cost in Each Department:

Department	Number of days patient stay (day)	overhead cost (NIS)
Cardiac Interventions	1,586	1,411,871
Cardiac Surgery	826	735,312
Internal Medicine	1,594	1,418,993
Orthopedics Surgery	1,462	1,301,485
ICU	650	578,636
Neuro-Surgery	1,650	1,468,844
General Surgery	1,155	1,028,191
Gastroenterologist	415	369,437
Pediatric, NICU, PICU	1,310	1,166,173
E.N.T interventions	388	345,401
Gyna and Obstetrical Surgery	301	267,953
Maxillo-Facial Surgery	255	227,003
Interventional Radiologist	58	51,632
Vascular Surgery	361	321,365
Oncology	4,656	4,144,812
Out Patient -Emergency	296	263,502
Total	16,963	15,100,610

Sixth Stage: Calculate the Unit Cost of Per Department

End result of using the (ABC) system, which calculates the cost of direct and overhead costs in each department for a period of six months using the table below:

Table 4.26: The Unit Cost of Per Department

Department	Direct cost (NIS)	overhead cost (NIS)	Total cost (NIS)
Cardiac Interventions	3,103,982	968,996	4,072,978
Cardiac Surgery	1,078,763	336,766	1,415,529
Internal Medicine	1,493,483	466,233	1,959,716
Orthopedics Surgery	2,554,162	797,354	3,351,516
ICU	1,175,203	366,873	1,542,076
Neuro-Surgery	2,048,644	639,542	2,688,186
General Surgery	1,192,091	372,145	1,564,236
Gastroenterologist	1,088,087	339,677	1,427,764
Pediatric, NICU, PICU	1,415,899	442,013	1,857,911
E.N.T interventions	532,464	166,224	698,688
Gyna and Obstetrical Surgery	632,351	197,406	829,757
Maxillo-Facial Surgery	158,851	49,590	208,441
Interventional Radiologist	453,268	141,500	594,768
Vascular Surgery	348,064	108,658	456,722
Oncology	29,002,228	9,053,867	38,056,095
Out Patient -Emergency	2,094,207	653,766	2,747,973
Total	48,371,746	15,100,610	63,472,356

4.5. Discussion

In this section, discusses how the study findings address the research questions and tested hypotheses. As stated in the first chapter, there are research questions. Therefore, the following subsections correspond to the research questions and the research hypotheses as displayed in Table 4.27. A summary of the study's tested hypotheses is presented in the table below.

Table 4.27: Summary of Hypotheses Testing

Hypothesis	Main Hypotheses	Remarks
H.1: The Top management support and the Information Technology Readiness are positively associated with ABC adoption among PPHs.		Supported
H.2: Training & Qualification and Information Technology Readiness are positively associated with ABC adoption among PPHs.		Supported
H.3: Service diversity& complexity and Information Technology Readiness are positively associated with ABC adoption among PPHs		Supported
H.4: Overhead costs & cost structure and Information Technology Readiness are positively associated with ABC adoption among PPHs.		Supported
H.5: Information Technology Readiness are positively associated with ABC adoption among PPHs.		Supported

4.5.1 ABC Adoption Among PPHs:

The purpose of this study is to examine the possibility and requirements to switch from TCS to ABC in PPHs, with the objective of enhancing the overall comprehension of ABC system adoption. By doing so, this research seeks to expand understanding of the contextual factors that influence ABC adoption and to identify any unforeseen advantages that may result from its adoption.

ABC system allocates its overhead costs to services based on cost drivers , overhead cost represented by data support in table 4.26 after applying ABC at IAH, the result show overhead cost accounts approximately 24 % from total cost , ABC system overcomes the problem arising from the use of TCS for allocating overhead costs, that's confirmed with (Cooper, 1991; Innes, 1990; Van Nguyen, 1997; Brown, 2004; Kaplan, 1998; Michael, 2008; Cardos, 2011; Yousif, 2011; Anderson, 1999; Berliner, 1989; Ellis, 2003; Grasso, 2005; Shields, 1995; Majid, 2008; Needy, 2015; Wegmann, 2009; Abu-Mogli, 2008; Durgham, 2009), ABC provide a more accurate services cost for pricing and strategic decisions because

overhead rate for each department as shown in figure 4.7 can be determined more precisely with relevant and timely information.

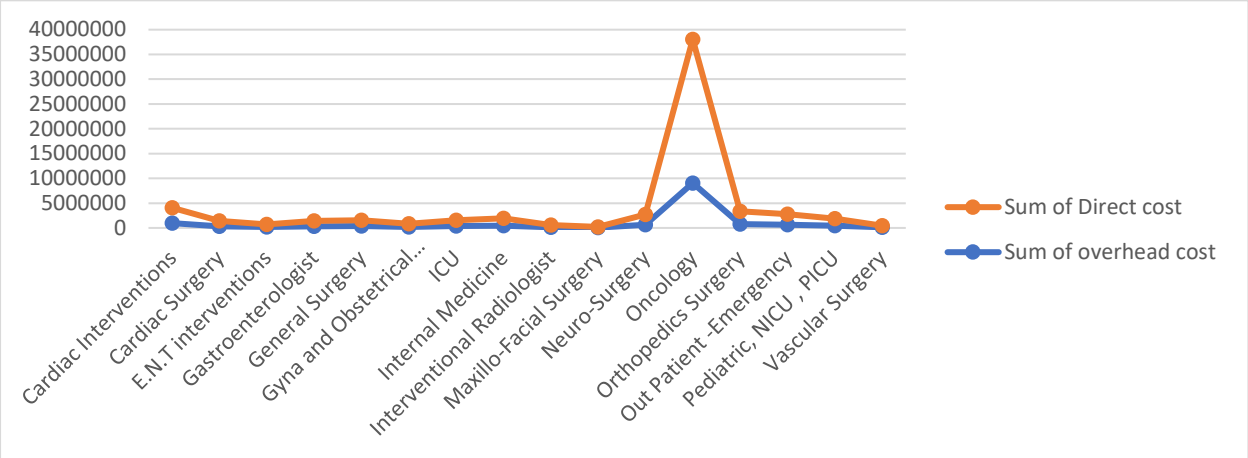

Figure (4.7): Sum of Direct and Overhead Cost For Each Department.

Source: Microsoft Excel.

ABC adoption is partially applied in some hospitals; that approximates about 47% according to data support in Table 4.1. As a result, the research considers contingency factors based on a literature review to aid in the possibility of ABC adoption among PPHs.

4.5.2 Contingency Factors and ABC Adoption Among PPHs:

1- Top management support.

The study reveals that although PPHs acknowledge the superiority of ABC over TCS, they fail to provide the necessary resources for full adoption. The analysis shows no statistically significant relationship between top management support and ABC adoption among PPHs. This finding is not in line with previous research that highlights top management support as a crucial factor in the success of ABC adoption. Previous studies suggest that top management should provide clear directives emphasizing the importance of ABC and allocate resources to establish a specialized cost accounting department. However, as shown in Table 4.1, the responsibility for cost accounting is assigned to the financial management department in about 85% of PPHs, and there is no specialized cost accounting department. This result aligns with the argument put forth by Durgham (2007) that positive

directives from top management are essential for successful ABC implementation. On the other hand, Taba (2005), Made (2017), and Aldukhil (2012) argue that top management may not always provide adequate support when adopting the ABC system. Moreover, Martin (2017) suggests that top management may prioritize other needs over the need for more accurate cost information.

2- Training & Qualification.

Table 4.1 indicates that a significant percentage of staff at PPHs hospitals have extensive professional experience, with approximately 49% having more than 5 years of practical experience and 78% having scientific specialization in accounting. This finding is consistent with Durgham (2007). However, despite the staff's experience, adequate training on the ABC system has not been provided, which could hinder its adoption in PPHs. Nassar (2013) suggests that the provision of adequate training is crucial for facilitating the decision to adopt the ABC system, as it helps employees understand the system and provides them with the knowledge and skills needed for adoption. Moreover, adequate training is the primary factor that influences managerial decisions to adopt the ABC system.

Malmi (1997) reported that lack of experience with ABC systems was the primary reason for their failure. However, this issue can be addressed through ABC system training and by involving external consultants with more experience. Top managers have a crucial role to play in facilitating this training.

Table 4.9 indicates that there is no correlation between training and qualification and ABC adoption, likely due to the lack of training courses on the role and importance of cost systems, particularly the ABC system. These courses should highlight the benefits and advantages of the ABC system and demonstrate the differences between it and traditional cost systems in allocating overhead costs. This finding is consistent with Durgham (2007).

3- Service Diversity & Complexity.

The health services provided to patients in PPHs are diverse and complicated, so we saw a positive trend toward adoption of the ABC system. This result is in line with (Durgham, 2007; Baird, 2004; Alshamlan, 2021) who suggested that there are positive directives from service diversity and development on the importance of adoption the ABC system. However, because most PPHs didn't have a cost accounting department to study and analyze health services, the ABC system couldn't be easily adopted. This result supports the study by Durgham (2007).

4- Overhead Costs & Cost Structure.

The ABC system is known for solving the problem of overhead costs, and this is what we support according to Table 4.25, This result is in line with (Cooper, 1988; Durgham, 2007; Baird, 2004) so ABC can help them to identify the activities for each service provided, then the overhead costs can be identified for each service provided, this result is in line with (Alshamlan, 2021). In addition, ABC system faces a problem in determining the accurate cost driver for the adoption of the system, this is supported in Table 4.25 in determining the cost driver, so it's hard for PPHs to figure out what drives the cost because most of them don't have experts in the field of cost accounting for health services, this result is in line with Bjørnenak (1997).

5- Information Technology Readiness.

PPHs have the information technology resources and data and software base needed to adopt the ABC system. Information technology supports this system and provides information that can be used to calculate overhead costs. In addition, information technology provides allocation of cost data for each health service that is provided. However, there is a challenge for information systems in determining the cost drivers for each health care services, this aligns with Al-Nuaimi (2018), who suggested that there is positive relationship.

PPHs have the appropriate infrastructure to adopt ABC system, which means that activities inside the hospital that are similar can be grouped together to establish activity centers, which makes it simpler to put the system into place, this result comes in line with Durgham (2007), who suggested that PPHs have the appropriate infrastructure for the adoption of ABC system. In spite of this, ABC is widely performed in PPHs, despite the fact that top management does not provide a strong and committed support ABC system. This offers difficulties for the ABC adoption, as well as difficulties in producing a particular strategy to adopt a clear system for all users. Additionally, this makes it difficult to build a clear ABC system.

The analysis presented in Table 4.8 reveals that while certain contingency factors exhibit a positive correlation with ABC adoption among PPHs, others do not display any significant correlation. These findings are consistent with previous research that has examined the role of mediating variables such as information technology readiness in facilitating the adoption of ABC within healthcare organizations (Brown, 2004; Liu, 2007; Majid, 2008; Elagili, 2015; Madwe, 2017; Albrrishi, 2020). Such research has highlighted the importance of considering both behavioral and organizational factors in promoting overall success in ABC implementation.

4.5.3 The Top Management Support and the Information Technology Readiness are Positively Associated with ABC Adoption Among PPHs:

Based on the findings presented in Table 4.10, it can be inferred that the relationship between top management support and ABC adoption among PPHs is positively and significantly mediated by information technology readiness, which supports the hypothesis of this study. This aligns with prior research by Brown (2004), Liu (2007), Majid (2008), Elagili (2015), and Jusoh (2015), which suggest that the support of top management is critical for successful adoption of the ABC system. This is because top management can provide the

necessary resources and data support to information technology, which can help facilitate the adoption of the ABC system.

4.5.4 Training & Qualification and Information Technology Readiness are Positively Associated with ABC Adoption Among PPHs:

The results presented in Table 4.11 indicate a positive and significant mediating effect of information technology readiness on the relationship between training & qualification and ABC adoption among PPHs, supporting the hypothesis of this study. This hypothesis is based on Krumwide's (1998) suggestion that ABC system training can increase the degree of adoption by establishing a shared understanding of the system's objectives among designers and users, reducing barriers to adoption, and promoting positive attitudes towards the system through the use of information technology.

4.5.5 Service Diversity &Complexity and Information Technology Readiness are Positively Associated with ABC Adoption Among PPHs:

According to the results presented in Table 4.12, information technology readiness mediates the positive and significant relationship between service diversity & complexity and ABC adoption among PPHs, which supports previous studies by Cooper (1988), Brown (2004), Elagili (2015), and Jusoh (2015). These studies suggest that PPHs with diverse services and high complexity require information technology readiness to increase the likelihood of adopting and effectively using the ABC system. Additionally, the study found a positive association between higher levels of cost information technology and the importance of cost information, but no association was found between service diversity and ABC adoption, as suggested by Al-Omiri (2007). However, this study posits that service diversity can render ABC appropriate for adoption with the mediating effect of information technology readiness, as presented by Abusalama (2008).

4.5.6 Overhead Costs & Cost Structure and Information Technology Readiness are Positively Associated with ABC Adoption Among PPHs:

Based on the results presented in Table 4.13, it can be concluded that the relationship between overhead costs & cost structure and ABC adoption among PPHs is positively and significantly mediated by information technology readiness, as hypothesized. This finding supports previous studies by Brown (2004), Liu (2007), Majid (2008), Elagili (2015), and Jusoh (2015), which suggest that PPHs with high overhead costs are recommended to adopt information technology to facilitate ABC system adoption. This is because information technology can help PPHs avoid wasteful spending and allocate overhead costs more accurately to services. Furthermore, the study highlights the importance of information technology readiness in the adoption of the ABC system in PPHs.

4.5.7 Information Technology Readiness are Positively Associated with ABC Adoption Among PPHs:

This study confirms the relationship between information technology readiness and ABC adoption among PPHs. The presented results indicate a positive and significant correlation between information technology readiness and ABC adoption, as hypothesized. This is consistent with previous studies by Brown (2004), Liu (2007), Majid (2008), Elagili (2015), and Jusoh (2015) that recommended information technology readiness as a key factor in facilitating the adoption of the ABC system.

Chapter Five

Conclusions and Recommendations

5.1. Overview

This chapter summarizes the main conclusions of the study, provides the necessary recommendations, discusses some limitations to the study, and finally gives directions for future researchers.

5.2. 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 a 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 health services provided for patients; therefore, ABC system is needed to be adopted the 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 is 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 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.
6) PPHs have the factors and appropriate infrastructure to adopt the ABC system, However, the perception of the respondents is that not fully adopting ABC is not a success in PPHs because there is no strategic analysis, planning, understanding of objectives, training, testing, or acceptance of the processes or benefits of the systems involved in adopting ABC. Therefore, the level of ABC adoption in PPHs is moderate.
7) The top management of PPHs may enhance revenue or decrease costs of health services with the use of information technology since it provides data that improves decision-making in the delivery of healthcare according to the ABC framework. Thus, Information technology readiness mediates the relationship between top management support and ABC adoption among PPHs.
8) Information technology training can help staff be more confident and comfortable by adopting the ABC system by PPHs, and they will help staff to acquire new skills. This can increase their contribution as well as their self-esteem and personal development, which can be a staff qualification for adopting the ABC system among PPHs. Therefore, Information technology readiness mediate the relationship between training & qualification and ABC adoption among PPHs.
9) PPHs have to deal with a lot of diverse and complex health services. Information technology has simplified it for them to deal with these complicated services, which

simplifies the process of adopting ABC system to be used. Therefore, information technology readiness mediates the relationship between service diversity & complexity and ABC adoption among PPHs.

10) Utilizing information technology is crucial to analyzing cost structures and enabling PPHs to offer optimal healthcare services at reasonable prices. It can also aid in distinguishing between direct and overhead costs, thereby facilitating the adoption of ABC system. Therefore, the readiness of information technology plays a mediating role in the relationship between overhead costs and cost structure and the adoption of ABC system among PPHs.
11) Information technology contains a general service like a database management system where software helps Palestine's private hospitals with the general form of data that can be used to adopt the ABC system. Therefore, Information Technology Readiness are positively associated with ABC adoption.

5.3. Recommendations

1) For successful implementation of the ABC system, it is imperative for PPHs' top management to show strong support for the initiative. This support should not only include providing necessary resources and means for ABC adoption, but also active support for staff and plans that facilitate time and effort savings during the implementation process.
2) In order to successfully implement ABC and differentiate it from TCS, staff training is critical. It is essential to train staff on the objectives, processes, and benefits of ABC adoption to enhance their understanding and confidence in the implementation process. PPHs should provide comprehensive training to staff who will be involved in the ABC adoption process.

3) PPHs should have a cost accounting department in the hospital, with staff who have experience with efficiency and whose function is to determine and study the cost of health services provided to patients, as well as regular re-analysis of health services provided to eliminate cost services that do not benefit patients and tasks to determine activity centers in the hospital to adopt ABC system.
4) Prior to any technological advancements, PPHs should establish an adoption and change management strategy. However, the recent surge of remote work and the need for productivity has led PPHs to adopt the ABC system in a more advanced manner than ever before. To determine if the ABC system should be adopted, PPHs should first define the adoption process's goals and identify the necessary resources to encourage adoption. Secondly, a detailed roadmap should be developed, including measurable targets, incentives, measurements, and analysis for users of the ABC system. Finally, PPHs must ensure effective communication of the adoption and change management strategy to all stakeholders involved. This should include defining roles, necessary skills and training, additional steps for adoption, and the benefits of the ABC system and how it can improve health services.
5) Based on the findings presented in the study, PPHs give importance not only to the technical aspects of adopting ABC system but also to the behavioral and organizational factors. Therefore, hospitals should prioritize their support towards these behavioral and organizational factors to encourage the progression through the ABC adoption decision stages. This is in contrast to the common belief advocated by ABC proponents that technological factors alone are the key drivers for ABC adoption. The study suggests that factors such as top management support, greater discretionary staff, and high overhead costs are crucial for hospitals to successfully

motivate change, facilitate a sustained evaluation process, and make informed adoption decisions.

5.4. Limitations of Study

The limited literature on factors influencing the adoption of ABC systems in healthcare services is a significant limitation of this study. While the contingency factors examined in this study (i.e., top management support, training & qualification, service diversity & complexity, overhead costs & cost structure, information technology readiness) have been widely recognized as important determinants of ABC adoption in other industries, there may be additional factors that are specific to healthcare services that were not accounted for in this study.

Moreover, the present study solely investigated the correlation between contingency factors and ABC adoption, while disregarding other possible moderators or mediators that could impact this relationship. Factors such as organizational culture, leadership style, financial incentives, and contextual elements may also play a crucial role in the adoption of ABC systems in healthcare services.

To address the limitations of this study, future research could investigate other factors that affect ABC adoption in the healthcare sector and analyze the potential interactions and mediating effects among these factors. This would provide a more thorough understanding of the factors that promote successful implementation of ABC systems in healthcare organizations.

Furthermore, the research sample lacked prior knowledge, and statistics available to researchers were insufficient. The primary research method employed was surveys, which necessitated close interaction with participants to gain a better understanding of the entire ABC adoption process.

Although this study utilized a small sample size as case studies to gain in-depth information on ABC adoption, some PPHs declined to cooperate with the study, and therefore, the results may not represent the overall nature of ABC adoption in all Palestinian industries.

Additionally, the application of the ABC system in PPHs has been criticized due to the small sample size and the short period of time studied. This may not hold true for PPHs when adopting the ABC system due to variations in hospital sizes.

5.5. Recommendations for Future Research

To further advance the findings of this study, future researchers are encouraged to expand on the developed model by exploring other contingency factors, including competition, decentralization, organizational interdependence, and organizational performance.

These factors may impact the adoption of the ABC system differently in various contexts. Furthermore, larger sample sizes and studies conducted in other economic sectors are recommended to improve the generalizability of the findings beyond the healthcare industry.

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Appendix:

A. A summary of contingency theory to ABC adoption studies:

Research	Country	Industry	Research methodology	Size of Sample	Contingent factors influencing ABC Systems
Alshamlan (2021)	United Kingdom	non-manufacturing companies	Questionnaire and interviews	1,902	• Competition • Service diversity • Differentiation strategy • Cost structure • Size • Cost reduction • Service quality
Albrrishi (2020)	Jordan	Manufacturing and services sectors	Questionnaire	400	• Environmental Factors • Information Technology • Organizational Culture
Aljabr (2020)	Saudi Arabia	Manufacturing	Questionnaire	200	• Competition • Indirect Costs • IT quality
Al-Nuaimi (2018)	Iraq	Banks	Questionnaire	402	• Organizational Culture • Information Technology • Organizational Structure • Competition
Martin (2017)	Ireland	Medium and large firms	Questionnaire	1,000	• Information Technology
Madwe (2017)	South African	Services Sectors	Questionnaire	30	• Firm Size • Product Diversity • Training • Cost Structure • Top Management Support • Resistance to Change • Internal Resources • Innovation • Internal Champion Support
Jusoh (2015)	Iran	Manufacturing	Questionnaire	400	• Product Diversity • Competition • Cost Structure • Information Technology • Organizational Size • Business Strategy
Elagili (2015)	Libya	Manufacturing	Interviews	27	• Importance and Usefulness of Cost Information • Cost Structure and Overhead Costs • Size of the Organization • Top Management Support • Innovation • Competition Intensity • Internal Champion Support • Product Diversity and Manufacturing Flexibility and Complexity

Reynols (2013)	South Africa	Manufacturing	Interviews	13	• Size and Product Diversity • Competition • Information Technology • Management Support • Organizational Culture • Training
Kongchan (2013)	Thailad	Manufacturing and services sectors	Interviews	14	• Government Policy • Organizational Structure • Competition • Organizational Culture • Technology • Organizational Strategy
Nassar (2013)	Jordan	Manufacturing	Questionnaire	88	• Training • Overhead costs • Product variants
Aldukhil (2012)	Australia	Manufacturing	Questionnaire	600	• Management Support. • Training • Non-accounting Ownership • Clarity of Objectives
Majid (2008)	Malaysia	Manufacturing	Interviews	2	• Top management support. • Software. • Overhead costs.
Abusalama (2008)	Ireland	Manufacturing	Questionnaire	218	• Firm Size • Competition • Company Sector • Business Unit Culture • Nationality • Cost structure (level of Overhead) • Product Diversity
Durgham (2007)	Palestine	Services Sectors	Questionnaire	124	• Top management support. • Diversity of treatment services. • Advanced accounting systems. • Competition • complexity of treatment services.
Khalid (2005)	Saudi Arabia	Listed Companies	Questionnaire	100	• Organizational Size • Cost Structure • Product Diversity
Taba (2005)	South Africa	Manufacturing	Questionnaire	121	• Training • Consultants • Top Management Support • Information Technology • Non-Accounting Ownership • Resources • Size • Competition
Schoute (2004)	Netherlands	Manufacturing	Questionnaire	2,108	• Competitive Strategy • Formalization • Differentiation • Centralization • Size • Perceived Environment Strategy

					• Product diversity • Competition • Product Line • Structure of Production Process
Brown (2004)	Australia	Manufacturing and non-manufacturing	Questionnaire	1279	• Top management support. • Champion. • Product diversity. • Size. • Total overhead. • Relative advantage.
Cagwin (2002)	United States	Manufacturing and Non-Manufacturing	Questionnaire	1058	• Information Technology Sophistication • Business Unit Complexity • Competition • Importance of Costs • Company Type • Size • Unused Capacity
Malmi (1999)	Finland	Manufacturing and Non-Manufacturing	Questionnaire	690	• Cost Structure • Strategy used in the Company • Competition • Company Size • Type of products • Products/Service diversity
Krumwiede (1998)	United States	Manufacturing	Questionnaire	778	• Non-Accounting Ownership • Training Level • Top Management Support • Clarification of Objectives • Production Type • Quality Management • Number of Purposes • Cost Distortion • Cost Information Usefulness • Information Technology Quality • Lean Production Systems
Bjørnenak (1997)	Norway	Manufacturing	Questionnaire	132	• Product Diversity • Level of Competition • Cost Structure • Size of Operating Units • Existing costing System
Van Nguyen (1997)	Australia	Manufacturing	Questionnaire	350	• Production Complexity • Competitive Intensity • Cost Structure • Production Diversity • Size

B. Operationalization of Study Contingency Factors and ABC Adoption:

Study Of Contingency Factors Variables and ABC Adoption

Variables and Dimensions	Reference
Variable 1: Top management support (TMS)	
TMS1: Hospital Management is interested in forming a team to adopt ABC.	Liu (2007)
TMS2: Hospital Management have adequate information about ABC.	Krumwiede (1998)
TMS3: Hospital Management sees that ABC output is better than that from TCS.	Taba (2005)
TMS4: Hospital Management have the Scientific and Practical Qualifications that have expertise in Advanced Accounting Systems.	Brown (2004)
TMS5: Top Management employs time and effort to adopt ABC.	Durgham (2007)
TMS6: Top Management provides the Resources needed for ABC Adoption.	Abusalama (2008)
	Intakhan (2014)
	Al-Nuaimi (2018)
Variable 2: **Training & Qualification (TQ)**	
TQ1: Accountants acquire Professional Training Certificates.	Liu (2007)
TQ2: Hospital Management have formed a team for ABC Training.	Krumwiede (1998)
TQ3: Employees commit to training regularly.	Taba (2005)
TQ4: Hospital have Professional Experienced Employees to Adopt ABC.	Brown (2004)
TQ5: Employees enroll in ABC Training.	Durgham (2007)
TQ6: Hospital provides enough training for ABC Design and Objectives.	Abusalama (2008)
	Intakhan (2014)
	Al-Nuaimi (2018)
Variable 3: Information Technology (IT)	
IT1:.The Hospital have an Electronic Accounting System that provides the necessary and Detailed data for ABC Adoption.	Liu (2007)
IT2: The Current Accounting Systems support selecting Indirect Costs.	Krumwiede (1998)
IT3: The Current Accounting Systems support selecting Cost Drivers for each Service.	Taba (2005)
IT4: The Current Accounting Systems support Cost Pools data collection for each service.	Brown (2004)
	Durgham (2007)

IT5: The Current Accounting Systems support selecting Activities for each Service.	Abusalama (2008)
IT6: The Hospital made Information Technology Resources available for ABC Adoption.	Intakhan (2014) Al-Nuaimi (2018)
Variable 4: Service diversity & complexity (SDC)	Liu (2007)
SDC1: TCS failure in accurately selecting each service costs promotes ABC Adoption.	Krumwiede (1998)
SDC2: Service Diversity by Quantity requires ABC Adoption.	Taba (2005)
SDC3: Service Diversity by Type requires ABC Adoption.	Brown (2004)
SDC4: Service Complexity and Advancement requires ABC Adoption.	Durgham (2007)
SDC5: The Provided Health Services are analyzed from time to time to get rid of the Services that don't benefit Patients.	Abusalama (2008) Intakhan (2014)
SDC6: The Hospital have a specialized Department to Determine the Cost of Services Provided for Patients.	Al-Nuaimi (2018)
Variable 5: Overhead costs & cost structure (OCS)	Liu (2007)
OCS1: Cost Accounting Department study and analyze hospital activities to determine factors the affect Costs.	Krumwiede (1998)
OCS2: Accountants can allocate direct costs for indirect cost for health services.	Taba (2005)
OCS3: Accurate Cost Driver can be selected for each Service provided.	Brown (2004)
OCS4: ABC helps in Overhead Costs Allocation.	Durgham (2007)
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)
Variable 6: Activity-Based Costing System (ABC) Adoption	Liu (2007)
ABC1: The Hospital have a plan for ABC Adoption.	Krumwiede (1998)
ABC2: ABC Adoption Objectives are clear for all Participants.	Taba (2005)
ABC3: The Hospital have the infrastructure and resources necessary for ABC Adoption.	Brown (2004) Durgham (2007)
ABC 4: ABC Team have the qualification and skillset necessary to adopt ABC.	Abusalama (2008)
ABC5: ABC Adoption have full and continuous Top Management Support.	Intakhan (2014)
ABC6: Activities are distributed on Departments and Activity Centers in the Hospital to adopt ABC.	Al-Nuaimi (2018)

ABC7: Similar Activities are defined in the Hospital to form Activity Centers for ABC Adoption.

ABC8: Cost Accounting Department select and analyze the activities associated with providing health services.

C. Survey:

السادة الأفاضل،

السلام عليكم ورحمة الله وبركاته

أما بعد

يجري الباحث، والملتحق حالياً في الجامعة العربية الأمريكية / فرع رام الله لنيل درجة الماجستير في المحاسبة والتدقيق، دراسة بعنوان

".إمكانية ومتطلبات الانتقال من نظام محاسبة التكاليف التقليدية إلى نظام التكاليف المبني على الأنشطة في المستشفيات الفلسطينية الخاصة "

يتلخص مفهوم "نظام التكاليف المبني على الأنشطة" هو ذلك النظام وذلك النظام الذي يقوم على تجميع التكاليف غير المباشرة لكل نشاط من أنشطة المستشفى في مجمعات التكلفة ثم توزيع هذه التكاليف على الخدمة المقدمة بموجب معدلات تحميل تحدد مسببات او موجهات مبنية على العلاقة السببية.

حيث تنبع أهمية هذه الدراسة من مدى وعي المستشفيات الخاصة الفلسطينية بتبني نظام التكاليف المبني على الانشطة، عن طريق تشخيص دقيق لأنظمة التكاليف غير المباشرة، وهذا من في شأنه أن يساعد في الاستخدام الفعال للموارد وسيساعد أيضا تحسين اتخاذ القرارات المناسبة ودقة احتساب تكلفة الخدمات الصحية المقدمة.

ونظراً لما تتمتعون به من خبرة ودراية علمية وعملية بحكم موقعكم في المؤسسة التي تعملون بها، فإنكم ولا شك قادرون على المساهمة في إثراء هذا البحث من خلال إجاباتكم على الاسئلة المرفقة مما يساعد الباحث من الحصول على البيانات الضرورية لتحقيق أهداف هذا البحث والوصول إلى النتائج الحقيقة.

راجياً تعاونكم وتفضلكم بالإجابة عليها وإعطاءها الاهتمام المناسب، علماً بأن الأجوبة ستعامل بسرية تامة وستستخدم لأغراض البحث العلمي فقط.

وتفضلوا بقبول فائق الاحترام والتقدير،،،

الباحث / حسن سالم ناجي **المشرف/ د.نصر عبد الكريم**

القسم الأول: المعلومات الديمغرافية:

1. مكان العمل:

( ) المستشفى الاستشاري العربي ( ) المستشفى العربي التخصصي

( ) مستشفى ابن سينا التخصصي ( ) مستشفى HClinic التخصصي

( ) مستشفى الاسراء التخصصي ( ) مستشفى نابلس التخصصي

2. الوظيفة الحالية

( ) مدير تنفيذي ( ) مدير مالي

( ) رئيس قسم ( ) محاسب

3. المؤهل العلمي:

( ) دبلوم ( ) بكالوريوس

( ) ماجستير ( ) دكتوراه

4. التخصص العلمي:

( ) محاسبة( ) إدارة أعمال ( ) علوم مالية ومصرفية

( ) إدارة صحية ( ) غير ذلك

5. شهادات المهنية:

( ) CMA ( ) CPA ( ) IACPA

( ) CIA ( ) غير ذلك ( ) غير حاصل

6. الخبرة المهنية في مجال المستشفيات:

( ) أقل من 5 سنوات( ) من 5 إلى 10 سنوات

( ) أكثر من 10 سنوات

7. الإدارة المسؤولة عن محاسبة التكاليف

( ) قسم متخصص لمحاسبة التكاليف ( ) قسم تابع للإدارة المالية

( ) قسم تابع لمحاسبة المرضى () جهة أخرى

8. مستوى اعتماد تطبيق نظام محاسبة نظام التكاليف المبني على الانشطة:

( ) مطبق ( ) مطبق بشكل جزئي ( ) غير مطبق

القسم الثاني: يرجى وضع إشارة (√) داخل المربع الذي يتوافق مع رأيك، وذلك أمام كل عبارة من عبارات الاستبانة.

المؤشر الأول: دعم الإدارة العليا

م	العبارات	اوافق بشدة	اوافق	محايد	أعارض	أعارض بشدة
.1	تهتم إدارة المستشفى بتشكيل فريق عمل لتنفيذ خطة تطبيق نظام ABC					
.2	تتوفر معلومات كافية لإدارة المستشفى عن أهمية نظام ABC					
.3	ترى إدارة المستشفى أن مخرجات نظام التكاليف المبني على الأنشطة أدق من نظام التكاليف التقليدي.					
.4	تتوفر لدى إدارة المستشفى المؤهلات العلمية والعملية الخبيرة بالأنظمة المحاسبية المتقدمة.					
.5	توفر الإدارة العليا الوقت والجهد لتطبيق نظام التكاليف المبني على الأنشطة					
.6	توفر الإدارة العليا الموارد اللازمة لتطبيق نظام التكاليف المبني على الأنشطة					

المؤشر الثاني: التدريب والتأهيل للموظفين

م	العبارات	اوافق بشدة	اوافق	محايد	اعارض	اعارض بشدة
.1	يلتحق العاملين في الحصول على الشهادات مهنية					
.2	قامت إدارة المستشفى بتشكيل فريق عمل لتدريب مستخدمي النظام.					
.3	يتوفر في المستشفى الموظفين ذو الخبرة المهنية المناسبة لتطبيق نظام ABC					
.4	يلتحق الموظفين في دورات متخصصة في نظام محاسبة تكاليف المبني على الأنشطة.					
.5	يتم توفير تدريب كافٍ ومستمر حول تصميم وأهداف ABC.					
.6	قدرة العاملين على مواكبة التطورات والمستجدات والمتطلبات لتطبيق نظام محاسبة تكاليف المبني على الانشطة.					

المؤشر الثالث: جهوزية أنظمة المعلومات

م	العبارات	اوافق بشدة	اوافق	محايد	اعارض	اعارض بشدة
.1	يوجد في المستشفى نظام محاسبي الكتروني يُمكن من توفير البيانات اللازمة والتفصيلية لتطبيق نظام ABC					
.2	تدعم الأنظمة المحاسبية المطبقة في تحديد التكاليف غير المباشرة					
.3	تدعم الأنظمة المحاسبية المطبقة في تحديد محركات التكلفة لكل خدمة.					
.4	تدعم الأنظمة المحاسبية المطبقة في جمع البيانات عن مجمعات التكاليف لكل خدمة					
.5	تدعم الأنظمة المحاسبية المطبقة في تحديد الأنشطة لكل خدمة					
.6	يتوفر موارد تكنولوجيا المعلومات اللازمة لتطبيق نظام ABC					

المؤشر الرابع: تنوع الخدمة وتعقيدها

م	العبارات	اوافق بشدة	اوافق	محايد	اعارض	اعارض بشدة
.1	يمثل عجز نظام التكاليف التقليدي عن تحديد تكلفة كل عنصر من عناصر الخدمات بشكل دقيق، حافزاً لتبني نظام ABC					
.2	يتطلب اختلاف الأنشطة من حيث الكم تطبيق نظام ABC					
.3	يتطلب اختلاف الأنشطة من حيث النوع تطبيق نظام ABC					
.4	يستلزم تعقيد وتطور الخدمات، تطبيق نظام ABC					
.5	يتم إعادة تحليل الخدمات الصحية المقدمة من حين لآخر من أجل التخلص من الخدمات التي لا تفيد المرضى.					
.6	يوجد في المستشفى قسم متخصص في تحديد تكلفة الخدمات الصحية المقدمة للمريض					

المؤشر الخامس: التكاليف العامة وهيكلية التكاليف

م	العبارات	اوافق بشدة	اوافق	محايد	اعارض	اعارض بشدة
.1	يحدد ويحلل قسم محاسبة التكاليف تكلفة الانشطة المختلفة في المستشفى لغرض التعرف على العوامل التي تؤثر على التكاليف.					
.2	يستطيع موظفو المحاسبة تحديد التكاليف المباشرة من التكاليف غير المباشرة للخدمات الصحية المقدمة.					
.3	يمكن تحديد محرك التكلفة الدقيق لكل خدمة صحية مقدمة.					
.4	يساعد نظام ABC في تخصيص أفضل للتكاليف غير المباشرة.					
.5	تطبيق نظام (ABC) يقلل من الوقت والجهد اللازمين لتنفيذ الأنشطة وبالتالي تقليل التكلفة.					
.6	يساعد نظام ABC في تحديد أسعار الخدمة الصحية بشكل أفضل وأكثر دقة.					

المؤشر السادس: اعتماد نظام التكاليف على أساس النشاط (ABC)

م	العبارات	اوافق بشدة	اوافق	محايد	اعارض	اعارض بشدة
.1	في المستشفى خطة محددة لتطبيق نظام ABC					
.2	أهداف خطة تطبيق نظام ABC واضحة لكافة المشاركين.					
.3	توافر البنية التحتية والقدرات اللازمة لاعتماد وتطبيق نظام (ABC) في المستشفى.					
.4	يتمتع أعضاء فريق تطبيق نظام ABC بالمهارة والكفاءة اللازمين في تطبيق النظام.					
.5	تحظى مبادرة ABC بدعم قوي ونشط من الإدارة العليا.					
.6	تم توزيع المهام على الأقسام ومراكز الأنشطة في المستشفى لتطبيق نظام ABC					
.7	تم تجميع الأنشطة المتشابهة في المستشفى لتشكل مراكز الأنشطة لتطبيق نظام ABC					
.8	يحدد ويحلل قسم محاسبة التكاليف الأنشطة المختلفة التي تتعلق بتقديم الخدمات الصحية المقدمة.					

الملخص

تهدف الدراسة إلى البحث في إمكانية ومتطلبات الانتقال من نظام محاسبة التكاليف التقليدية، إلى نظام التكاليف المبني على الأنشطة في المستشفيات الفلسطينية الخاصة، وذلك من خلال دراسةِ الفروقات بين نظام التكاليف التقليدي، ونظام التكاليف المبني على الأنشطة، والعواملِ الأساسية لاعتماد نظام التكاليف المبني على الأنشطة في المستشفيات الفلسطينية الخاصة، وتبحث أيضًا في أهمية نظام التكاليف المبني على الأنشطة، الذي يوفر معلومات ذات تكلفة اكثر دقة من أجل احتساب تكلفة خدمات الرعاية الصحية في المستشفيات الفلسطينية الخاصة.

تُحرِزُ النظريةُ الشرطية تقدما مهما نسبيّاً في أبحاثِ نظام التكاليف المبني على الأنشطة؛ لذا، وفّرت هذه الدراسةُ جزءًا مُعمَّقا منها لدراسةِ نجاحِ اعتماد هذا النظام من خلالِ العوامل الشرطية. حيث استخدمت الدراسةُ المتغيرَ الوسيطَ (جهوزية أنظمة المعلومات) إذْ تؤثر أنظمة المعلومات على العلاقة بين العوامل الشرطية، واعتماد نظام التكاليف المبني على الأنشطة في المستشفيات الفلسطينية الخاصة.

تم استخدام المنهج الكَمّي في هذه الدراسة. حيث تم جمعُ البيانات الأولية من ستِّ مستشفياتٍ فلسطينية خاصة، باستخدام استبانة تم توزيعها إلكترونياً، واعتمدت تحليل البيانات على (105) موظفين. علاوةً على ذلك، تم جمع بيانات النصف الأول من عام 2022 من المستشفى الاستشاري العربي، تظهر نتائج الدراسة قدرة نظام التكاليف المبني على الأنشطة، على توفير معلومات أكثرَ دقةً حول تكاليف الخدمات الصحية. إضافةً إلى ذلك، كشفت الدراسة أن جهوزية أنظمة المعلومات تتوسط في وجود علاقة إيجابية بين عوامل الشرطية، واعتماد نظام التكاليف المبني على الانشطة في المستشفيات الفلسطينية الخاصة؛ لذلك، تلقي هذه الدراسة الضوء على الجوانب السلوكية والتنظيمية للنظرية الشرطية التي تعتبر مهمةً في تبني نظام التكاليف المبني على الأنشطة.

الكلمات المفتاحية: نظام محاسبة التكاليف التقليدية، اعتماد نظام التكاليف المبني على الأنشطة، المستشفيات الفلسطينية الخاصة، نظرية الشرطية، جهوزية أنظمة المعلومات.