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Using Time-Driven Activity-Based Costing (TDABC) to Rationalize Hotel Service Costs

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Abstract: In our world, the number of hotels that provide entertainment and tourism services is increasing, and most hotels are in fierce competition with each other. In order to prepare accurate data on the cost of the guest during his stay, a new method of cost accounting has been developed to keep pace with fierce competition and rapid technological progress. This method is represented by the method of cost accounting based on time-driven activities (TDABC). Its main objective is to test the impact of applying the cost system based on time-specific activities in rationalizing the costs of hotel services. The theoretical aspect showed the concept of this system, its advantages, criticisms and the components directed at it. The study adopted the case study method at the Agnar Tourist Hotel. It is a five-star hotel and the ability of the hotel employees to provide all the information necessary to develop the cost system used in the hotel. In order to prepare the research for the practical aspect, the researcher relied on the accounting data in the hotel records, the research sample and personal interviews with the hotel employees. The study was conducted in 2018. The study concluded that the hotel management can rely on the data issued by the time-driven activity-based costing (TDABC) system. The use of this system in the hotel distinguishes between practical energy and achievable energy. Because the cost of the guest is calculated in the system by estimating the practical energy of each of the activities carried out in the hotel.

Keywords: ABC , TDABC

1. Introduction

Tourism is one of the most important strategic activities that is characterized by the essential capabilities to compete with other countries by working to improve tourism services, and hotel services are considered one of the most important pillars in the development of tourism. Hotels are currently one of the most important basic elements to attract tourists from all over the world.

The economic and social importance of tourism activity has made the hotel industry a specialized industry, because hotel activity directly affects tourism movement and gives it strength and publicity that tourists transmit, and for this reason countries have paid attention to tourism and hotel activity, as they have created a special ministry for tourism and established hotel institutes affiliated with it that teach the basics of hotel service and how to manage and supervise the various hotel departments and then monitor them effectively.

The emergence of globalization in the field of business has become a prominent role in many economic and social fields, which has led to an increase in the intensity of competition in the hotel sector due to the increase in the number of hotels at the present time, and each hotel provides different services from the other hotel according to the

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degree of the hotel that is granted to it by the Tourism Authority, and this has led to the emergence of competition in the work.

The competitive advantage refers to the character that distinguishes the hotel from other hotels, and there are many methods that the hotel follows in order to be able to obtain a competitive advantage, including a low room rental price in exchange for providing the best services to the guest, announcing the hotel's name and having a wide reputation in local circles, then it achieves a competitive advantage.

In order for these hotels to operate efficiently and effectively, they must have a management capable of obtaining appropriate information, calculating costs, and pricing methods for hotel services of all kinds. Thus, the need for planning and monitoring the performance of hotel work has become through a tight management capable of performing the most important activities, and this management is represented by accounting for costs on the most important hotel activities, and the costing method based on time-driven activities (TDABC), which provides an effective methodology for measuring the performance of the activities provided by the hotel, through which management can be assisted in planning, monitoring, and making various decisions.

This method is distinguished by determining the appropriate time for each activity through time equations that are calculated and reveal to us the unused energy, and therefore this method is considered successful in allocating costs to the most important basic activities of the hotel. The research is based on the hypothesis that working with the time-driven activity-based costing (TDABC) method in the Agnar Tourist Hotel leads to reducing the costs of hotel services and rationalizing pricing decisions, through which we help the hotel management in planning and controlling to make the necessary administrative decisions.

THEORETICAL REVIEW

The emergence and development of (ABC)

In the late twenties of the last century, (ABC) was used in all factories, companies and economic institutions. Those in charge of these factories, companies and institutions were interested in this system because it leads to reducing costs and giving institutions and companies the opportunity to improve their best products in order to achieve profit through the emergence of products with a very profitable series. (Cooper and Kaplan, 1991: 130)

Many researches and articles have confirmed the discussion of (ABC), which confirms the emergence of this system in the late twenties of the last century, specifically in 1987 AD, through a series of studies addressed by (Cooper and Kaplan). (Al-Bakri and Youssef, 1996: 213)

Activity Based Costing (ABC) is considered a strategic tool used to improve operational efficiency. The scientist (Goetz) defended the (ABC) system in 1949, where he said that all indirect costs must be homogeneous and each total may change in the change of some operations, through a process of linking cost and activity. (Drury, 2002: 340)

General Electric was the first to use the (ABC) system by preparing a team in 1963 to monitor indirect costs, where it found solutions to reduce these costs. Therefore, the project owners came up with a new term, which is the activity that caused these costs. (Hadeeb, 2009: 36)

The professor of accounting at Harvard University, Robert Kaplan, used the (ABC) system in 1987. The scientist Robin Cooper made a change to the system in 1988, and American companies became the first companies to implement the (ABC) system at the hands of these two scientists. (Hadeeb, 2009: 37)

(ABC) views the service as a package of activities to provide the best products to the customer, so the cost of this service is the total direct or indirect costs of each activity within the product. (Al-Shaarani, 2010: 94)

Many economists have confirmed that the traditional system is on the verge of extinction because it does not provide the needs of modern units, and that (ABC) is the most recent through the elements of competition facing the economic unit because it allocates costs to activities. (Bufi, 2014: 9)

(ABC) is defined as: the system that first allocates resources to the activities that benefit from them, then allocates the costs of these activities according to the rate of their benefit from these activities. (Abdul Latif, 2004: 218)

It is also known by the International Consortium of Advanced Manufacturing Companies (CAM-I): an approach that measures the cost of performing activities, resources and cost targets, distributes the cost of resources to activities, distributes the cost of activities to cost targets based on their use and distinguishes the causal relationships of cost drivers to activities. (Al-Mashaal, 2005: 49)

The concept of time-driven activity-based costing (TDABC) and application steps

The many advantages that the activity-based costing system (ABC) has experienced for a number of years among the existing methods for allocating indirect costs have led to many criticisms, including the difficulty of developing and applying it. The matter was in creating a new system that contains the strengths of the activity-based costing system (ABC) and the weaknesses it suffers from. The time-driven activity-based costing method (TDABC) was used by the scientists (Cooper and Kaplan) and this newer method focuses its mission on converting the cost wave into a time equation that expresses the time for each event in the activity of the activities practiced by the economic unit. (Adkins, 2008: 8)

(Kaplan) indicated that his theses that were conducted with (Cooper) related to activity-based costing (ABC) suffered failure as a result of the difficulties that this method faced in terms of its application because it suffers from high costs and requires a lot of Data and information as a result, they abandoned this method. (Namazi, 2009: 34)

The time-driven activity-based costing system (TDABC) actually appeared in 2003 to address the problems facing the activity-based costing system (ABC) and find solutions for them. (Namazi, 2009: 34)

The developments that took place on the time-driven activity-based costing system (TDABC) have become at the forefront through the developments that took place on it very quickly to provide the information that economic units need. (Al-Shaarani, 2010: 115)

Managers have become more in need of this time-driven activity-based costing system (TDABC) because it meets their needs because it has become more consistent with the needs of economic units. (Donovan, et.al., 2014: 85)

The difficulties faced by (ABC) and the large number of activities in economic units and their need for a long time by conducting personal meetings with employees when adding a specific activity, therefore, requires those units to provide a sound system that helps them make the necessary decisions for the purpose of determining the cost of each activity. Therefore, there was a need to develop a new method to provide more accurate and fair information in distributing indirect costs through what was provided by the study (Kaplan and Anderson), which is represented by costs based on time-driven activities (Time Driven Activity Based Costing), which is symbolized by the symbol (TDABC).

That (TDABC) relies on time equations in calculating the cost of each activity and is easier to use and apply. (Bruggeman, et.al., 2005: 172)

Based on the above, it is clear that the time-driven activity-based costing (TDABC) method is the best choice for economic units because it is easy to apply, has low cost, and is a smooth method to apply as it depends on time equations that are applied to each activity.

It is defined as: a method based on the traditional activity-based costing (ABC) system that works to reduce application costs, speed of implementation, and ease of updating, in addition to that it contains time cost drivers. (Al-Shaarani, 2010: 93)

Based on the above, it can be said that the (TDABC) system is based on time equations basically, which makes this system easier to apply, and when making a change such as adding activities, it only requires making simple adjustments to the time equations in an easier way than when applying the previous systems. The (TDABC) system is considered the strongest and most widely used in economic units.

By reviewing some definitions of (TDABC), it becomes clear that (TDABC) goes through two stages: (Haitham, 2013: 17)

The first stage

Knowing the actual capacity of resources and the cost of each one of them as a basis for calculating the cost will lead to an increase in the unused energy in the activities as a result of loading the cost into the exaggerations that will occur in the cost.

The second stage

Knowing the time required to complete each activity because (TDABC) needs to know the time required for each event to complete it by knowing the unit cost of the available resources with determining the time required for each activity, and this is accomplished through time equations that are calculated for each event of the events practiced by the economic unit.

Advantages of (TDABC)

1. The advantages of the time-driven activity-based costing system (TDABC) include its low cost, ease of updating as quickly as possible, speed of use, and ease of modification. (Bruggeman, et.al., 2005: 19)
2. (TDABC) detects the achievable energy that provides operational efficiency and reduces measurement errors as it is measured per minute or hour. (Kaplan & Anderson, 2007: 25)
3. (TDABC) highlights the achievable energy. (Al-Shaarani, 2010: 122)
4. (TDABC) eliminates the difficulties faced by (ABC) in large economic units, as it is not necessary to conduct a study showing the working time of employees in many department activities. (Szychta, 2010: 57)
5. It is practiced in the areas of planning and budgeting. (Dewi, et.al., 2012: 1962)

Accordingly, the time-driven activity-based costing system (TDABC) has many advantages over the activity-based costing system (ABC), and the (TDABC) system reveals the practical energy and the energy that can be achieved for each activity and its most important areas of use in planning and budgeting.

Implementation steps

(Everaert, et.al., 2008: 172)

1. Selecting the group of resources that can perform the activities.
2. Estimating the cost for the group of resources that perform the activities such as wages and depreciation.
3. Selecting the practical energy available from time, for example, available working hours.
4. Calculating the unit cost for each group of resources by dividing the total sum of resource costs by the practical energy.
5. Measuring the time required for each activity based on time equations is necessary.
6. Calculating the service cost for each group of resources by multiplying the cost of one unit by the time that the activity bears for each event in the activity.

2. Materials and Methods

The research methodology applied in this study incorporates a case study approach to examine the implementation of time-driven activity-based costing (TDABC) in a hotel setting. The primary objective is to analyze how TDABC can be used to optimize cost management for hotel services. To conduct this study, financial data from the Agnar

Tourist Hotel, a five-star establishment, was collected for the fiscal year 2017. This data was sourced from hotel records and through direct interviews with hotel personnel to ensure accuracy and comprehensiveness. By focusing on activity-based costing metrics, specifically time equations for each operational activity, the study assesses the hotel's operational efficiency and identifies areas where costs can be rationalized. The TDABC model enables the allocation of costs based on the actual time spent on each activity, providing a clearer picture of the service costs associated with different room categories. Findings suggest that TDABC offers a more precise cost allocation compared to traditional methods, helping the hotel make informed pricing and management decisions. This approach supports the overall goal of enhancing operational efficiency and achieving a competitive advantage in the hotel industry.

3. Results

1. Spatial boundaries: The Agnar Tourist Hotel located in Najaf Governorate was chosen because it is a five-star hotel and the hotel staff are able to provide all the necessary information.
2. Temporal boundaries: The financial data for the Agnar Tourist Hotel were taken for the period from 1/1 to 31/12 of the fiscal year 2017.

Table (1) Statement of determining the unit cost according to the traditional hotel system

Details	Single Room	Double Room	Triple Room	Suite
Number of Occupancies	1876	2547	2089	1276
Total Costs	52943846	83542332	88764203	90378619
Unit Cost ((Occupancy	28222	32800	42491	70830

Table (2) Statement of profitability determination according to the traditional hotel system

Details	Single Room	Double Room	Triple Room	Suite
Average selling price	93750	125000	187500	250000
Unit cost ((occupancy	28222	32800	42491	70830
Profit	65528	92200	145009	179170
Profit ratio	%70	%74	%77	%72

Table (3) Cost of one bed according to the traditional hotel system and the (TDABC) system

Details	Conventional System	TDABC System	Cost Saving
Single Room	28222	13058	15164
Double Room	32800	18262	14538
Triple Room	42491	23351	19140
Suite	70830	48572	22258

Table (4) Profitability analysis statement according to the (TDABC) system

Details	Single Room	Double Room	Triple Room	Suite
Average selling price	93750	125000	187500	250000
Unit cost ((occupancy	13058	18262	23351	48572
Profit	80692	106738	164149	201428
Profit ratio	%86	%85	%88	%81

The above table shows that the profit margin has increased from what it was previously, and the reason for this is that the unit cost has decreased from what it was in

the traditional system, as the triple room reached the highest profit margin of 88%, then the single room 86%, followed by the double room 85%, and then the suite 81%.

It is noted through the application of the costing system based on time-driven activities (TDABC), there are significant differences in the cost of the service provided to the guest, and the researcher believes that the possibility of applying this system in the hotel will lead to a review of the pricing program in effect and training hotel employees to use the system, and this will lead to achieving a competitive advantage and improving the competitive position among the hotels in the governorate.

4. Conclusion

The activity-based costing system (ABC) requires high costs to implement, unlike the time-driven activity-based costing system (TDABC), which is characterized by speed and flexibility in application because it relies on time equations. The use of the time-driven activity-based costing system (TDABC) is not limited to production units only, as long as the consumption of operations can be measured according to time. This system has been widely extended to include hotels, which has shown significant differences in the cost of the service provided to the guest. The hotel management's ability to rely on the data issued by the time-driven activity-based costing system (TDABC) is distinguished. The use of the time-driven activity-based costing system (TDABC) in hotels distinguishes between practical energy and achievable energy. The cost of service to the guest is calculated by determining the practical energy for each activity from the front office, food and beverage, hotel management, laundry and ironing, and excluding idle energy. The application of the time-driven activity-based costing system (TDABC) in hotels provides information about the cost of each activity practiced by the hotel and has shown the great profitability of hotels that apply this system

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