

Application of Time Driven Activity Based Costing System (TDABC) in Hotels Sector in Jordan – Case Study

Ahmad Hamadh Saed Odeh

Al-Isra University, Accounting Department, Faculty of Business, 11622, Amman, Jordan

Prof. Abdul Hakim Mustafa Joudeh

Al-Isra University, Accounting Department, Faculty of Business, 11622, Amman, Jordan

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Abstract:

This study aimed to apply the Time Driven Activity Based Costing System (TDABC) at a first-class hotel in Jordan to calculate the cost of overnight service (rooms and suites). The study relied on the financial statements, statistical tables and personal interviews on calculating the cost of rooms and suites division. The study showed a range of results, including: (TDABC) is easier, more accurate than the traditional cost system applied at the hotels and it is able to separate between the used and unused capacity. There is an overvalued sales price, particularly the suites sale prices. The study concluded a set of recommendations; the most important are, it is preferable to reduce the prices of rooms and suites services, especially the service price of suites, because it is overpriced. The prices should not be determined primary according to the market price and the advantage of the view of rooms and suites. The recommendations also include that (TDABC) helps the hotel management to use the unused capacity, developing their business and increasing their market share.

Keywords: Time Driven Activity Based Costing system (TDABC), Hotels Sector, Jordan.

INTRODUCTION

INTRODUCTION

The hotel services sector has evolved as a result of industrial and economic development in many countries, including Jordan. This sector has witnessed significant development and widely prevalent, especially in recent years. Competition between hotels has deepened, and accordingly spending in this sector has increased, leading to increased investment. This accused the hotel managements to consider providing the best services, while keeping the costs incurred for providing those services to a minimum while controlling and monitoring these costs.

The recent development in providing services at hotels has increased the costs in the hotels, in particular the indirect costs. This situation made the hotels managements encounter a great difficult in charging, controlling and monitoring the indirect costs using the traditional cost system.

In general, criticism has launched to the traditional cost system, including: the system's weakness in

providing sufficient and correct information on the true cost of production as the system relies mostly on charging indirect costs on a single basis, resulting to provide inaccurate information on the cost of production. Therefore, this may lead to wrong decisions taken by the management of the organization (Horngren, 2011).

As a result, to the criticism launched to the traditional cost system, a new system was created to address the indirect cost based on Activities, Activity Based Costing System (ABC), which is based on the allocation resources not on divisions. However, (ABC) was also criticized for: it needs high application cost, many data and details; it requires dealing with several activities, and complicated operational processes. Its continuity has become costly in terms of time and effort, requiring a new and alternative method that is fast, easy to use and applied (Joudeh, 2010).

As a result of criticism of the traditional cost system and (ABC), (Kaplan & Anderson, 2004) introduced a new system, known as Time Driven Activity Based Costing (TDABC). It is a new cost-

measurement system. It aims to overcome the weaknesses of previous systems, and to shift from a complex cost system to a system that provides useful and accurate information to the management at the lowest possible cost. This system is an update to the (ABC) system, which allocates resources to activities, and considered a new version of the (ABC) that uses time equations. The idea of the system is based on converting cost drivers into time equations that reflect the time required to complete the activities, as a function of some drivers. These properties are called Time Drivers, which occur as a result of activity time consumption.

THE STUDY PROBLEM

The problem of this study is the lack of applying modern cost systems used by most hotels in Jordan, including the sample, to measure the cost of their services as they still depend entirely on traditional cost system. This has resulted in many problems and challenges encountered by these hotels, especially in the light of the intense competition of hotel services, continuous and rapid developments in the provision of services and the high cost of these services. Due to the shortcomings of the hotel's traditional cost system applied in the hotel and criticism launched to, the researchers attempted to apply (TDABC) in one of the hotel's service divisions, which is the rooms and suites division.

THE IMPORTANCE OF STUDY

The hotel sector is deemed one of the most important service sectors in Jordan, which has witnessed a significant development recently in terms of the volume of investment. Hotels sought to provide excellent and distinctive services, especially five-star hotels, leading to the increase of the indirect costs. The indirect costs accounted a large proportion of the total cost of hotel service. Therefore, it was necessary to look for the application of the latest indirect cost allocation system, which is (TDABC) system, to provide more accurate information to the hotel management about the cost of rooms and suites determines its price, as well as determining the used and untapped capacity and make the appropriate administrative decisions.

THE PURPOSES OF THE STUDY

This study aims to calculate the cost of rooms and suites according to (TDABC), identifying the used and unused capacity, and comparing the cost of rooms and suites according to (TDABC) and the

cost of the room and suites according to the system applied in the hotel and the price of sale of rooms and suites.

HYPOTHESIS

The study is based on a key hypothesis stating that the application of (TDABC) is better and more accurate than the traditional cost system being applied in the hotel in terms of determining the cost of rooms and suites division.

THEORETICAL ASPECT

Time Driven Activity Based Costing System (TDABC)

Due to the difficulties associated with (ABC) system, (Kaplan & Anderson, 2004) introduced a new system, known as (TDABC). It is a new system in the field of measuring the costs and for overcoming (ABC) weaknesses, switching from a complex and costly system to a tool of providing useful and accurate information to the hotel management at the lowest cost. (TDABC) is an update to the (ABC) that allocates resources to activities and is a new version of the (ABC) that uses Time Equations. The idea of the (TDABC) was based on the conversion of Cost Drivers into time equations that reflect the time required to complete activities as a function of some drivers. These properties are called time drivers that occur as a result of activity time consumption (Adkins, 2008).

(TDABC) is an alternative and emerging cost system that addresses most of the problems and shortcomings of the (ABC) (Terungwa, 2012). The emergence of optimal time cost system has led to overcome the defects and criticism launched to (ABC), which is less costly based on the actual ability of the resource supply. The emergence of optimal time cost system with cost-based system has led to overcome the defects and criticism of (ABC). (TDABC) is less expensive, faster in practice, easier to use and helps to determine the cost turnover rates based on the actual capacity of supply (Al- Rashidi, 2009).

(TDABC) ability to contain the strength of (ABC) and overcome its weaknesses helped the concept of cost breakdown by activities to return to forefront and transition from complex and costly financial system to a tool that provides useful and accurate information to the management at less cost (Al-Sha'rani, 2010).

Atkinson confirmed that the main reason for the creation of (TDABC) is due to the fact many companies refrained using (ABC) because of the problems caused by its application. (Atkinson, et al., 2004)

TDABC's origins are due to the cost management literature when (Cooper, 2000) presented a research showing the differences between duration driver and transaction driver. The transaction drivers are linked to the number of times the activity is implemented (for examples, how often machines are prepared). When the resources needed to carry out activities vary each time the activity is carried out, it can be argued that calculating the cost on the basis of transaction drives will be inaccurate in determining the cost. This variation in transactions used to be addressed in two methods; first by the increase of activities number and classifying them to simple, medium, and complex levels and determining the rate of charging each one, the second by using time drivers that require to estimate the time required to complete the activity (for example, the preparation hours). Although the time drivers are more accurate than transactions drivers, but its calculation is costly, so the cost system designers often use drivers at any time they think it provides reliable information and estimates of resource consumption.

(TDABC) has been defined as a more transparent, scalable, easy-to-implement and up-to-date methodology that allows managers to obtain important information about costs and profitability quickly and at the lowest cost (Guzman, et al, 2016). It has also been defined as a system that helps to improve the performance by providing accurate and detailed information on the extent to which the economic units use their resources efficiently (Santana & Afonso, 2016).

The cost calculation process by the (TDABC) shows what might be called a different methodology and method compared to (ABC). The recent system estimates the order directly by (the purpose of cost) rather than of allocating resource costs on activities and then on the purpose of cost for each resource set. The costs of processed capacity are determined first, and then the practical energy of the processed resources is determined. The capacity charging cost rate is obtained by dividing the cost of theoretical capacity resources by the capacity of practical resources measured by the time. Here the need for

the information on the requirement of each activity from the activity unit (Time), which is obtained by the direct observation and interviews. The activity cost driver is obtained by multiplying the time of activity unit by the rate of capacity cost. The activity cost driver is used with the number of implemented activities for the specified period to calculate the total activities costs during the period (Kazem, 2015).

The (TDABC) is characterized by reducing the number of activities used, easy development, lowest cost, accuracy in estimating the cost, providing clear information during operation, easy and fast in practical application, determines the future expectations related to the resources demands based on the number of orders expected, and effective in performing processes and energy use (Siquenza, et al., 2013). It also provides more accurate and objective information. It contributes in providing a proper methodology in measuring the cost of economic unit products, which assists the management to perform its core functions in monitoring, planning, and decision-making (Abdullah and Bdeewi, 2019).

Despite the advantages of The (TDABC), there are some criticisms of the system, including: there may be constraints in measuring time, especially for service activities in the time-based model, because the service times are irregular and unstable and may cause abnormality in the calculation of cost under this system. In addition, an accurate measurement of time required for each activity may not be guaranteed because time measurement process is subject to the personal and discretionary judgment (Kazim, 2015).

It can be said for the purpose of avoiding previous criticism, and for a successful implementation of the system, it is necessary to provide a comprehensive system that feeds the system with the data and information. In addition, interacts with the systems responsible for providing operational information; such as project resource planning system and customer relationship management system (Gervais, et al. 2009).

The Practical Aspect

Jordan's tourism and hotel sector is one of the most important sectors that supply the treasury with hard currency resources, as it contributes to a significant portion of domestic products. The hotel, the sample

of this study, is one of the most important five-star hotels in Amman. The hotel consists of four buildings; each has different number of rooms and suites.

The cost system based on time driven activities has been applied on overnight service activity (rooms and suites), because this activity achieves the highest profitability among other activities. The hotel's overnight service activity consists of ten types of rooms and suites, which vary in terms of service provided, space and views that take into account in room pricing.

We have visited the hotel more than once and interviewed the hotel officers and some staff to obtain the necessary financial and statistical data and information necessary for this study. Some other data were obtained through direct observation of functioning.

Overnight Service Activity (Rooms and Suites):

The hotel has ten different types of rooms and suites. The following table shows the types, and size of the rooms and suites, as well as the number of reservations during the year and its percentage.

Table (1): Types of Rooms and Suites

No .	Type	Size m ²	Number	Number of reservations during the year	Reservations %
1	Classic Twin	30 m ²	125	19120	18.654%
2	Deluxe Twin	32 m ²	119	30463	29.719%
3	Premium Twin	34 m ²	55	6517	6.359%
4	Club Twin	34 m ²	91	24806	24.200%
5	Deluxe Suite	64 m ²	25	3433	3.349%
6	Club Suite	68 m ²	12	15173	14.804%
7	Premium Suite	68 m ²	5	1424	1.389%
8	Presidential Suite	136 m ²	6	1292	1.260%
9	Imperial Suite	144 m ²	1	185	0.180%
10	Royal Suite	160 m ²	1	89	0.086%
				102502	100%

Cost Classification:

Costs at the hotel were classified to direct and indirect cost.

1. Direct costs

Direct costs consist of the cost of inventory and labor.

- a. **Inventory:** All rooms and suites are provided with inventory by the rooms and suites division, and are entirely replaced with new inventory when the guest leaves the room except towels and sheets that are rewashed in a hotel washing room. The following table shows the types of inventory provided to the rooms and their cost.

Table (2): Inventory

No.	Item	Cost/ JD
1	Shampoo	72000
2	Conditioner	68000
3	Lotion	44000
4	Body Gel	72000
5	Soap	75000
6	Hand Towel	6000
7	Face Towel	24000
8	Bath Towel	24000
9	Linen	192284
Total		577284

From the above table, the cost of inventory amounted to JD (577284).

- b. **Labor:** housekeeping labor cost is direct labor because it serves and belong to the rooms and suites division only.

Table (3): Labor

No.	Post	Number	Total annual salary/JD
1	Housekeeping Manager	1	44100
2	Assistant Housekeeping Manager	1	23520
3	Housekeeping Supervisor – Rooms	9	89964
4	Room Attendant	36	222264
5	Housekeeping Coordinator	2	17052
6	Housekeeping Supervisor – Public Area	3	31752
7	Public Area Attendant	14	90552
Total			519204

From Table (3), the cost of direct labor amounted to JD (519204).

2. Indirect Costs

Indirect costs at the hotel consist of indirect Labor (reception section), particular and general indirect cost.

a. Indirect Labor

Indirect labor at the hotel consist of the salaries of receptionists and management. They serve all guests of the hotel as well as other sections of the hotel. The cost of indirect labor was distributed between the rooms and suites division and other divisions by seven hours to the room and suites division and one hour to the other divisions. This percentage was determined after studying the time in the reception and management sections.

Table (4): Indirect Labor

No.	Post	Number	Total Annual Salary/ JD
1	General Manager	1	110000
2	Director of Rooms	1	88200
3	Bell Man	8	61152
4	Bell Captain	2	21756
5	Front Office Shift Leader	5	80475
6	Front Desk Agent	10	76440
7	Concierge Supervisor	3	25578
8	Concierge Agent	5	36750

9	Guest Relations Agent	5	38220
10	Assistant Manager	2	29400
11	Duty Manager	2	38220
12	Night Manager	1	19110
13	Chief Concierge	1	24990
14	Guest Relations Manager	1	20580
Total		47	670871

From the previous table, the indirect labor amounted to JD (670871).

b. Particular Indirect Costs

Particular Indirect Costs are those primarily disbursed to the rooms and suites division and the other divisions have nothing to do with these costs. The following table shows the particular indirect costs of rooms and suites division.

Table (5): The Particular Indirect Costs

No.	Type	Cost/ JD
1	Uniform Costs	5182
2	Uniform Laundry	300
3	Laundry & Cleaning	19638
4	Printing & Stationery	27041
5	Commission-Travel Agents	156464
6	Local Transport	1983
7	Manpower Development	4749
8	Contract Cleaning	8012
9	Cleaning Supplies	11691
10	Guest Supplies	295232
11	Complimentary F&B	109926
12	Complimentary Services & Gifts	700
13	Decorations	49920
14	Music / Entertainment	13050
15	Postages – Guest	150
16	Guest Transportation	4583
17	Complimentary In Room Media / Entertainment	52812
18	Upselling Incentive	59547
19	Reservations Expenses	37944
20	Reservations / Global Distribution Service to IHG GDS	129392
21	Depreciation of Buildings	454047
22	Depreciation Furniture	698272

23	Miscellaneous	15529
Total		2156164

From the table above, we note that the indirect particular costs amounted to JD (2156164). The entire costs were disbursed mainly to the rooms and suites division, so they are considered to be particular costs for rooms and suites division.

c. General Indirect Costs

The general indirect costs mean the costs intended for all the hotel facilities divisions. The following table shows the general indirect costs.

Table (6): General Indirect Costs

No.	Item	Value/ JD	Rooms Percent	Cost/ JD
1	Electricity	1260910	75%	945683
2	Water	155176	75%	116382
3	Fuel	380547	75%	285410
4	Maintenance	349271	75%	261953
5	Other	272135	75%	204101
Total		2418039		1813529

It is clear from the above table that the general indirect costs amounted to JD (1813529). They represent (75%) of total overhead costs. The assistant finance manager and direct officers responsible for these costs have determined this percentage of the rooms from the general indirect costs.

Steps of Applying the (TDABC)

In order to calculate the rooms and suites division cost according to the system, the work has been divided into the following steps:

First Step: Determining the Activities.

The first step is to determine the activities of the rooms and suites division. Activities shall be explained as follows:

(A): Reception Activity/ Check in: This activity consists of the following three sub- activities:

(A1): Welcome Activity: the porter receives the guest at the front door of the hotel and welcomes him in different welcome phrases.

(A2): Transport of luggage from the hotel door to the reception section: the porter transports the

quest's luggage from the door to the reception section.

(A3): Data entry activity: this activity consists of three cases, namely:

Case 1: the reservation of the quest was made in advance by phone or internet. The data entry in this case the easiest case (pre-entered).

Case 2: the quest may have previous data in the hotel (frequent customer to the hotel).

Case 3: a new quest for the first time. This case requires the longest time to enter the data.

(A4): Activity of transporting the luggage from the Reception Section to the rooms and suites: the porter will transport the quest's luggage from the reception section to the rooms and suites.

(B): Housekeeping Activity: This activity consists of the following three sub-activities:

(B1): Cleaning rooms and suites before use activity: the rooms and suites servants prepare the rooms and suites for the quest before the quest enters.

(B2): Cleaning rooms and suites during usage activity: The rooms and suites servant clean rooms and suites while the guest exists is in the rooms and suites. Such cleaning job usually is done quickly.

(B3): Cleaning rooms and suites after the quest checks out: the room and suites servants clean the rooms and suites after the quest checks out immediately and prepare them for the next quest.

(C): Reception/ Check out Activity: This activity consists of three sub-activities, namely:

(C1): Moving Luggage from the Rooms and Suites to the Reception Section Activity: when the quest informs the receptionist that he wants to leave, the porter will move the luggage from the rooms and suites to the reception section.

(C2): Inspection Activity: The receptionist calls the housekeeping staff to inspect the room and suite and make inventory of other services provided to the quest.

(C3): Payment Activity: It is the activity of printing the invoice for the quest contains all the amounts due to the hotel and receives the invoice value from the quest.

The following table shows the activities in the room

and suites division the total time each activity.

Table (7): The Activities and the Total Time (Minutes)

No.	Activities	Activity Description	Activity Duration/ Minute		
			First Case	Second Case	Third Case
A	Activity Reception/ Check In	(A1)	1	1	1
		(A2)	1	1	1
		(A3)Case 1	2		
		Case 2	-	4	-
		Case 3	-	-	6
		(A4)	5	5	5
			9	11	13
B	Housekeeping Activity	(B1)	10	10	10
		(B2)	5	5	5
		(B3)	15	15	15
			30	30	30
C	Activity Reception/ Check Out	(C1)	3	3	3
		(C2)	5	5	5
		(C3)	3	3	3
			11	11	11
Total time/ minute			50	52	54

We note from the table (7) above that the total number of minutes for the three cases was (50) minutes for the first case, (52) minutes for the second case, and (54) minutes for the third case. The difference in the number of minutes between the three cases is due to the time the information is entered for each guest. Time has been calculated by direct observation of the workflow.

Second Step: Determining the Unit Times

Unit time is the exact time that needed to do the activity. In this step, we observed how much time is needed by employees to accomplish each activity and make the time equation to calculate the total time. The following table shows the time equation:

Table (8): Time Equation

No.	Activity	Time Equation
1	Reception activity/ check in:	
	First Case	$9^1 \text{ minutes} \times \text{total rooms and suites sold}$
	Second Case	$11 \text{ minutes} \times \text{total rooms and suites sold}$
	Third Case	$13 \text{ minutes} \times \text{total rooms and suites sold}$
2	Hotel housekeeping activity	$30 \text{ minutes} \times \text{total rooms and suites sold}$
3	Reception Activity/ Check out	$11 \text{ minutes} \times \text{total rooms and suites sold}$

Table (7)

We note from table (8) above that the total number of minutes for the three activities is multiplied in the total rooms and suites sold during the year.

Third Step: Determining the Practical Capacity Resources Used.

Having determined the time equation, the next step is to calculate the practical capacity resources used. Practical capacity resources used is a total of time available for productive work for each supporting unit doing their activities.

Calculation the practical capacity resources used:

- Determining the number of days, hours and minutes of work per year:

The year consists of (365) days (i.e. 52 weeks), there is a day off per week, so the working days of per week is (6) days. The day consists of (8) working hours and the hour consists of (60) minutes.

$$52 \text{ weeks} \times 6 \text{ days} = 312 \text{ working days.}$$

$$312 \text{ working days} \times 8 \text{ hours} = 2496 \text{ working hours.}$$

$$2496 \text{ working hours} \times 60 \text{ minutes} = 149760 \text{ working minutes per year.}$$

- Determining the unproductive hours and minutes.

There is one hour off (unproductive) per day.

312 working days × 1 hour break = 312 hours break
312 Hour × 60 minutes = 18720 minutes per year.

- Determining the practical capacity resources used per year:

149760 minutes – 18720 minutes = 131040 working minutes per year.

Taking the number of (47) staff members in the reception section, the maximum practical capacity of the section is: 131040 minutes × 47 employees = 6158880 practical minutes per year.

The following table shows the practical capacity resources used per year for the reception section:

Table (9): Practical Capacity Resources Used

No.	Position	Number of Staff	Work Time (Minutes)	Total Minutes of Work	Unproductive Minutes	Productive minutes
1	General Manager	1	149760	149760	(18720)	131040
2	Director of Rooms	1	149760	149760	(18720)	131040
3	Bell Man	8	149760	1198080	(149760)	1048320
4	Bell Captain	2	149760	299520	(37440)	262080
5	Front Office Shift	5	149760	748800	(93600)	655200
6	Front Desk Agent	10	149760	1497600	(187200)	1310400
7	Concierge Supervisor	3	149760	449280	(56160)	393120
8	Concierge Agent	5	149760	748800	(93600)	655200
9	Guest Relations Agent	5	149760	748800	(93600)	655200
10	Assistant Manager	2	149760	299520	(37440)	262080
11	Duty Manager	2	149760	299520	(37440)	262080
12	Night Manager	1	149760	149760	(18720)	131040
13	Chief Concierge	1	149760	149760	(18720)	131040
14	Guest Relations	1	149760	149760	(18720)	131040
Total		47	149760	7038720	(879840)	6158880

From the table above, the number of productive minutes annually was (6158880) minutes.

Fourth Step: Determining the Capacity Cost Rate (minute).

After determine the practical capacity resources used, the next step is to calculate the capacity cost rate in indirect labor for each type of rooms and suites.

The formula to calculate the capacity cost rate (minute) is as follows:

Capacity Cost Rate (Minute) =		
Total Indirect Labor	¹ 670,871	0.109JD/ Minute
Total Productive Minutes	² 6,158,880	
¹ Table (4) ² Table (9)		

From the above equation, we note that the capacity cost rate of indirect labor was JD (0.109) per minute.

Step 5: Determine the Cost Driver Rates.

After determining the capacity cost rate per minute, the cost driver rate for every activity is estimated in unit time. This calculation will result in unit cost, which has become the most important component for the (TDABC) application. The unit cost reflects how much costs are required for the completion of a single activity. Because of calculation of capacity cost rate results in the same amount of cost for all rooms and suites types (0.109) JD/ minute, the calculations for cost driver rate shown in following table.

Table (10): Cost Driver Rates

No.	Activity	Activity Description	First Case			Second Case			Third Case		
			Time Unit (Minute)	Time Unit cost (Minute)	Total Cost	Time Unit (Minute)	Time Unit Cost (Minute)	Total Cost	Time Unit (Minute)	Time Unit Cost (Minute)	Total Cost
1	Check in/out Activity	(A1)	1	0.109	0.109	1	0.109	0.109	1	0.109	0.109
		(A2)	1	0.109	0.109	1	0.109	0.109	1	0.109	0.109
		(A3)	2	0.109	0.218	4	0.109	0.436	6	0.109	0.654
		(A4)	5	0.109	0.545	5	0.109	0.545	5	0.109	0.545
2	House-keeping Activity	(B1)	10	0.109	1.09	10	0.109	1.09	10	0.109	1.09
		(B2)	5	0.109	0.545	5	0.109	0.545	5	0.109	0.545
		(B3)	15	0.109	1.635	15	0.109	1.635	15	0.109	1.635
3	Check in/out Activity	(C1)	3	0.109	0.327	3	0.109	0.327	3	0.109	0.327
		(C2)	5	0.109	0.545	5	0.109	0.545	5	0.109	0.545
		(C3)	3	0.109	0.327	3	0.109	0.327	3	0.109	0.327
Total			50	0.109	5.450	52	0.109	5.668	54	0.109	5.886

We note from the table above that the cost of the room and suites from the indirect labor amounted in the first case (5.450) JD, in the second case (5.668) JD and in the third case (5.886) JDs.

The percentage of unused capacity in the Classic room was approximately (16.79%) in the first case, (13.46%) in the second case and (10.13%) in the third case. This is a positive indicator on the utilizing the available capacity by the hotel management. These percentages were extracted based on Annex 1. The untapped capacity

percentage of other type of rooms will be extracted in the same manner, which produces the same percentages.

Sixth Step: Determining the Cost of Rooms and Suites

This step is the most important step in the (TDABC). It gives the total cost of rooms and suites consisting of direct and indirect costs. The following table shows the cost of first type of room, which is classic room. The cost of other types of rooms and suites is determined in the same manner.

Table (11): The Cost of Classic Room

Description	First Case	Second Case	Third Case
Direct Costs			
Inventory	85961	85961	85961
Direct Labor	77312	77312	77312
Total of Direct Costs	163273	163273	163273
Indirect Cost			
Indirect Labor	104204 ¹	108372	112540
Particular Indirect Cost	321065	321065	321065
General Indirect Cost	270046	270046	270046
Total of Indirect Costs	695315	699483	705651
Total of Costs	858588	862756	868924
Total of Costs ÷ The Number of Rooms Sold	19120	19120	19120
Cost per Room	44.91	45.12	45.45
¹ AnnexNo. 1			

The cost of the classic room is calculated as follows:

- **Cost of Inventory:**

The number of classic rooms sold was (19120) rooms, the area of one classic room was 30 m² and therefore the area of the classic rooms sold is (573600) m². The total area of rooms sold in the hotel after multiplying the room space in the number of rooms sold for each type was (3852107) m². The space of the rooms sold will be used to distribute the cost of inventory and labor as well as indirect particular and general costs.

Total cost of inventory × the percent of area of classic room sold from the total rooms and suites space sold.

$$= 577284 \text{ JDs} \times (573600\text{m}^2 \div 3852107\text{m}^2)$$

$$= 85960.775 \text{ JDs}$$

- **Indirect Labor Cost:**

Total direct labor cost × percent of classic room space sold from the total rooms and suites space sold.

$$= 519204 \text{ JDs} \times (573600\text{m}^2 \div 3852107\text{m}^2)$$

$$= 77312.342 \text{ JDs.}$$

- **Indirect labor: see Annex (1).**

- **Particular indirect costs:**

Total particular indirect costs × percentage of classic room space sold out of the total room space sold.

$$= 2156164 \text{ JD} \times (573600\text{m}^2 \div 3852107\text{m}^2)$$

$$= 321064.724 \text{ JD.}$$

We note from table (11) above that the cost of the classic room in the first case was (44.91) JD, in the second case it was (45.12) JD and in the third case it was (45.45) JD. The cost of other rooms and suites is determined in the same way.

Comparison between the Cost of Rooms and Suites by (TDABC) and the System Applied in the Hotel and the Sale Price.

After the cost of all rooms and suites types was determined by (TDABC). This was compared with the cost of rooms and suites according to the traditional system applied by the hotel. The cost of rooms and suites according to (TDABC) was also compared to the hotel's approved rooms and suites sale price. The following table illustrates this

comparison:

Table (12): The Comparison and the Sale Price

No.	Type	(TDABC)			The Applied System	Sale Price
		First Case	Second Case	Third Case		
1	Classic Twin	44.91	45.12	45.45	70	120
2	Deluxe Twin	49.12	49.34	49.56	70	150
3	PremiumTwin	51.18	51.40	51.62	75	150
4	Club Twin	51.18	51.40	51.62	80	180
5	Deluxe Suite	79.01	79.23	79.45	230	500
6	Club Suite	86.22	86.44	86.66	250	800
7	PremiumSuite	86.22	86.44	86.66	270	550
8	PresidentialSuite	156.29	156.51	156.73	320	800
9	Imperial Suite	164.51	164.73	164.95	400	900
10	Royal Suite	180.93	181.14	181.37	530	1500

From the previous table, Table (12), there is a difference in the cost of rooms and suites between the (TDABC) and the cost of rooms and suites in the traditional cost system applied at the hotel, especially the cost of suites. It is also clear that there is a great difference between the cost and the sale price approved by the hotel due to various reasons, including: the hotel management's reliance on the market prices, and the advantage of the view of rooms and suites in determining the price. They do not rely on the costs of the rooms and suites approved in the hotel because it is old, which has not been updated since years.

RESULTS AND RECOMMENDATIONS

Results of the study

1. Calculating cost based on time-driven activities is easier, less expensive and more accurate than the applied system at the hotel.
2. Relying on the time unit to allocate indirect costs is more logical and accurate than the applied system at the hotel.
3. One of the positive results of the (TDABC) is its ability to separate the between the used capacity and the unused capacity, which is not provided by the applied system at the hotel.
4. There is an overpricing of rooms and suites, especially the sale prices of the suites.

Recommendations of the study

1. It is preferable to reduce the prices of rooms and suites, especially suites, because there is a significant overpricing. The hotel management should not rely primarily on the market price and the advantage of the view of the rooms and suites in determining the sale price.

2. Applying (TDABC) due to its advantages in determining the used and unused capacity of rooms and suites. This helps hotel management to use the unused capacity, develop its business and increase its market share.
3. It is preferable for the hotel management to apply the (TDABC) because the fundamentals of applying the system are available in the hotel.

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No	Activity	Job description	Number of rooms sold	First case				Second case				Third case			
				Time/ minute		Cost		Time/ minute		Cost		Time/ minute		Cost	
				Minute	Total	Cost of time unit (minute)	Total	Minute	Total	Cost of time unit (minute)	Total	Minute	Total	Cost of time unit (minute)	Total
				1	2	3=1*2	4	5=1*4	2	3=1*2	4	5=1*4	2	3=1*2	4
1	Reception Activity/ check in	A1	19120	1	19120	0.109	2084.08	1	19120	0.109	2084.08	1	19120	0.109	2084.08
		A2	19120	1	19120	0.109	2084.08	1	19120	0.109	2084.08	1	19120	0.109	2084.08
		A3	19120	2	38240	0.436	4168.16	4	76460	0.436	8336.32	6	114720	0.436	12504.48
		A4	19120	5	95600	0.545	10420.40	5	95600	0.545	10420.40	5	95600	0.545	10420.40
2	Hotel housekeeping activity	B1	19120	10	191200	1.09	20840.80	10	191200	1.09	20840.80	10	191200	1.09	20840.80
		B2	19120	5	95600	0.545	10420.40	5	95600	0.545	10420.40	5	95600	0.545	10420.40
		B3	19120	15	286800	1.635	31261.20	15	286800	1.635	31261.20	15	286800	1.635	31261.20
3	Reception activity/ check out	C1	19120	3	57360	0.327	6252.24	3	57360	0.327	6252.24	3	57360	0.327	6252.24
		C2	19120	5	95600	0.545	10420.40	5	95600	0.545	10420.40	5	95600	0.545	10420.40
		C3	19120	3	57360	0.109	6252.24	3	57360	0.109	6252.24	3	57360	0.109	6252.24
Used Capacity					956000		104204		994240		108372		1032480		112540
Unused Capacity					192877		20940		154637		16772		116397		12604
Total					1148877		125144		1148877		125144		1148877		125144
			First Case: Total minutes = 6158880 x 18.654% = 1148877 minutes Unused capacity per minute = 1148877-956000 = 192877 minutes Unused capacity percent = 192877 / 1148877 = 16.79% Total cost = 670871 x 18.654% = 125144 JD Unused capacity JD = 125144-104204 = 20940 JD				Second Case: Total minutes = 6158880 x 18.654% = 1148877 minutes Unused energy per minute = 1148877-994240 = 154637 minutes Unused capacity percent = 154637 / 1148877 = 13.46% Total cost = 670871 x 18.654% = 125144 JD Unused capacity JD = 125144 -108372 = 16772 JD				Third case: Total minutes = 6158880 x 18.654% = 1148877 minutes Unused energy per minute = 1148877-1032480 = 116397 minutes Unused capacity percent = 116397 / 1148877 = 10.13% Total cost = 670871 x 18.654% = 125144 JD Unused capacity JD = 125144-112540 = 12604 JD				