

# Impact of Applying the ABC on Improving the Financial Performance in Telecom Companies

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## Abstract

The focus of this paper is to explore the impact of activity-based costing (ABC) on telecom companies performance. To achieve this aim, a questionnaire survey was considered, and structured interviews with selecting staffs in management accounting and financial departments were conducted to supplement the survey data. This paper shows that ABC is appropriate for telecom companies as a service sector. The result indicated a positive relationship between applying the ABC and the telecom companies financial performance, and the needed infrastructure to implement the ABC is available in telecom companies operations, but there are obstacles prevent telecom companies to apply the ABC in their operation to control cost and optimize expenses, which requires more studies.

**Keywords:** activity-based costing, Jordan telecommunications, ABC implementation, performance, profitability

## 1. Introduction

The main objective of accounting became no more only recording the financial transactions for the organization to determine its financial position at a certain period, but it became specially in the last decades as a tool to measure the performance of any organization, and a tool for maximizing its profitability.

As we know any organization is aiming to achieve business continuity, sustainability and maximizing its profitability by increasing its competitive edge in the marketplace that the organization is operating in. Organizations need to focus on the actions they need to take in order to remain competitive and survive the current economic downturn (Maiga & Jacobs, 2006). In this competitive environment, the cost accounting system should accomplish cost efficiency without any negative impact on the quality of the provided services; provide the proper information to the management for taking the rational decisions and to continue quality improvement in the various organizations' operations. Activity based costing (ABC) theoretically is targeting to accomplish all of the mentioned objectives. Cost accounting allows measurement and provides cost information, however the measurement of cost is more difficult to be determined for the provided services, based on the traditional costing methods which depend on allocating the cost based on non-logical criteria, which will lead at the end to allocate unjustifiable cost to the final product, regardless if these cost are associated directly or indirectly with this product. Traditional accounting methods fall short in providing management with the strategic information needed in today's operating environment (Kaplan, 2006). Activity-Based Costing shows why traditional cost accounting was of little use for service entities. Because of the changing competitive environment in the service sphere: deregulation, increased competition, new forms of services as a result of development of the Internet, globalization (Szychta, 2010), the importance of the activity based costing (ABC) emerged to enhance the financial performance in Jordanian telecom companies. The increase of competition level in Jordanian telecom marketplace will affect the ability of the telecom companies to generate a major incremental revenues, which will affect their profitability, so the telecom companies needs to find ways to optimize the cost, and to eliminate the non-value added activities, taking into consideration the telecom companies before financial crisis they had a financial stability and the need for cost controlling was not top priority for them, but the situation today is completely different.

This paper attempts to investigate the Impact of applying the ABC on improving the financial performance in the

Jordanian telecom companies. So, three questions raised in this paper explaining these objectives:

- 1) Does the ABC system contribute in empowering the telecom companies to optimize expenses and increase Profitability?
- 2) Do the telecom companies have the needed infrastructure to implement the ABC system to measure the cost related to the provided services?
- 3) Are there any obstacles that prevent telecom companies from applying the ABC costing system?

The remainder of the paper is structured as follows: review of existing literature relevant to this study, explain research methodology, present the data analysis and the findings.

## **2. The Importance of the Study**

The telecom industry is considered so important for the national economy and considered a significant contributor to the GDP, from another perspective the telecom industry in the Jordan is one of the most competitive markets in the region, according to Arab advisor group, Jordan came in the first rank as per the competition index as we will see later.

Based on all of that, the telecom operator need to maintain sustainability, financial stability and profitability, especially when we know that the penetration rate in Jordan exceeded 120% as per Telecommunications Regulatory Commission (TRC) statistics, which means the possibility for revenue growth is declining year after year, accordingly all telecom companies need to control cost to achieve efficiency. From here the importance of the study is emerged, because the researchers in this study is trying to give attention to the costing process in telecom companies, and the value that are stemmed from applying ABC costing system.

### *2.1 Competitiveness of Telecom Industry in Jordan*

As we mentioned, the telecom industry in the Jordan is one of the most competitive markets in the region, according to Arab advisor group, which creates the index of a cellular competition intensity to assess the level of telecommunications intensity in the Arab region. Table (1) illustrates the intensity level of competition in the Arab World's cellular markets.

Jordan came in the first rank as per the competition index with, while Saudi Arabia came in second, followed by Palestine, Oman, Egypt, Morocco, Iraq, Tunisia, Yemen, Bahrain, Algeria, Sudan, Mauritania, Kuwait, Qatar, UAE, Syria, Libya and Lebanon.

Table 1. Cellular competition intensity index

Country	Row #	Licensed operators (including granted and expected in 2010)	Working operators by May 2010	Market share of largest operator by end of 2009	Prepaid plans by April/May 2010	Postpaid plans by April/May 2010	Corporate offers by April/May 2010	3G services by April/May 2010	ILD competition by April/May 2010	Score	
<b>Weights</b>		<b>15%</b>	<b>40%</b>	<b>10%</b>	<b>7.5%</b>	<b>7.5%</b>	<b>5%</b>	<b>5%</b>	<b>10%</b>	<b>100%</b>	
1	Jordan	A	4	4	43.60%*	24	37	YES	YES	YES	80.7%
		B	1.00	0.67	0.56	1.00	0.79	1	1	1	
		C	0.15	0.27	0.06	0.08	0.06	0.05	0.05	0.1	
2	Saudi Arabia	A	4	4	45.90%**	13	26	YES	YES	YES	75.3%
		B	1.00	0.67	0.54	0.54	0.55	1	1	1	
		C	0.15	0.27	0.05	0.04	0.04	0.05	0.05	0.1	
3	Palestine	A	2	6	84.00%	9	15	YES	NO	YES	69.3%
		B	0.50	1.00	0.16	0.38	0.32	1	0	1	
		C	0.08	0.40	0.02	0.03	0.02	0.05	0	0.1	
4	Oman	A	2	4.5^	49.40%*	10	9	YES	YES	YES	67.1%
		B	0.50	0.75	0.51	0.42	0.19	1	1	1	
		C	0.08	0.30	0.05	0.03	0.01	0.05	0.05	0.1	
5	Egypt	A	3	3	39.08%	16	21	YES	YES	YES	65.7%
		B	0.75	0.50	0.61	0.67	0.45	1	1	1	
		C	0.11	0.20	0.06	0.05	0.03	0.05	0.05	0.1	
6	Morocco	A	3	3	60.34%	7	47	YES	YES	YES	64.9%
		B	0.75	0.50	0.40	0.29	1.00	1	1	1	
		C	0.11	0.20	0.04	0.02	0.08	0.05	0.05	0.1	
7	Iraq	A	4	4	50.00%*	4	3	YES	NO	YES	63.4%
		B	1.00	0.67	0.50	0.17	0.06	1	0	1	
		C	0.15	0.27	0.05	0.01	0.00	0.05	0	0.1	
8	Tunisia	A	3	3	53.42%	11	21	YES	YES	YES	62.7%
		B	0.75	0.50	0.47	0.46	0.45	1	1	1	
		C	0.11	0.20	0.05	0.03	0.03	0.05	0.05	0.1	
9	Yemen	A	4	4	33.92%	23	4	YES	NO	NO	61.1%
		B	1.00	0.67	0.66	0.96	0.09	1	0	0	
		C	0.15	0.27	0.07	0.07	0.01	0.05	0	0	
10	Bahrain	A	3	3	52.90%*	7	11	YES	YES	YES	59.9%
		B	0.75	0.50	0.47	0.29	0.23	1	1	1	
		C	0.11	0.20	0.05	0.02	0.02	0.05	0.05	0.10	
11	Algeria	A	3	3	46.39%	12	26	YES	NO	YES	59.5%
		B	0.75	0.50	0.54	0.50	0.55	1	0	1	
		C	0.11	0.20	0.05	0.04	0.04	0.05	0.00	0.10	
12	Sudan	A	3	3	49.93%**	8	4	YES	YES	YES	59.4%
		B	0.75	0.50	0.50	0.33	0.09	1	1	1	
		C	0.11	0.20	0.05	0.03	0.01	0.05	0.05	0.1	
13	Mauritania	A	3	3	65.06%^	5	3	YES	YES	YES	56.8%
		B	0.75	0.50	0.35	0.21	0.06	1	1	1	
		C	0.11	0.20	0.03	0.02	0.00	0.05	0.05	0.1	
14	Kuwait	A	3	3	48.20%***	3	15	YES	YES	NO	49.8%
		B	0.75	0.50	0.52	0.13	0.32	1	1	0	
		C	0.11	0.20	0.05	0.01	0.02	0.05	0.05	0	
15	Qatar	A	2	2	85.70%	7	12	YES	YES	YES	46.4%
		B	0.50	0.33	0.14	0.29	0.26	1	1	1	
		C	0.08	0.13	0.01	0.02	0.02	0.05	0.05	0.1	
16	UAE	A	2	2	63.40%	2	2	YES	YES	YES	45.4%
		B	0.50	0.33	0.37	0.08	0.04	1	1	1	
		C	0.08	0.13	0.04	0.01	0.00	0.05	0.05	0.1	
17	Syria	A	2	2	56.19%	8	2	YES	YES	NO	38.0%
		B	0.50	0.33	0.44	0.33	0.04	1	1	0	
		C	0.08	0.13	0.04	0.03	0.00	0.05	0.05	0	
18	Libya	A	3	2	70.48%	5	1	NO	YES	NO	34.3%
		B	0.75	0.33	0.30	0.21	0.02	0	1	0	
		C	0.11	0.13	0.03	0.02	0.00	0	0.05	0	
19	Lebanon	A	2	2	55.32%	2	2	YES	NO	NO	31.2%
		B	0.50	0.33	0.45	0.08	0.04	1	0	0	
		C	0.08	0.13	0.04	0.01	0.00	0.05	0	0	

### 3. The Theoretical Part for Activity Based Costing (ABC)

Activity based costing (ABC) which developed by Cooper and Kaplan in the late 1980s is emerged as a potential approach to solve traditional costing problems (Major & Hopper, 2005), because of its fundamental concentration on activities, the activity based costing help the organization in measuring the cost by studying and analyzing the activities, to determine the activity that has added value to organization, and eliminating any

activity that has no value added, which will lead to maximizing the organization's profitability.

Activity based costing ABC trace indirect and support expenses accurately to individual product, service and customers (Atkinson, Banker, Kaplan, & Young, 2001). In other words, ABC system is a system based on activities that links organizational spending on resources to the products and services produced and delivered to customers (Atkinson et al., 2001). The ABC allocates overhead to multiple activity cost pools and assigns the activity cost pools to products or services by means of cost drivers that represent the activities used. The direct cost is the cost of resource or activity that is acquired for or used by a single cost object, whereas the indirect cost is a cost of resource that was acquired to be used by more than one cost object.

Activity based costing techniques, from another perspective can provide the means to identify cost-bearing activities effectively and to allocate costs to individual products. The basic aim of ABC is to cost activities, not products; costs are allocated to products on the basis of the individual products' demand for those activities. The allocation bases (cost drivers) are the quantification of the activities performed (Kreuze & Newell, 2001).

Traditional cost system use actual departments or cost center for distributing costs, ABC system instead of using cost centers, use activities, that is rather than asking how to allocate department expenses to the services, the ABC system ask what activities are being performed by the department's resources.

Traditional cost system normally allocate overheads (indirect) cost to individual services or product based on some product volume, and this is considered the major limitation of the traditional cost theory, because it allows cross-subsidiaries between services or products, the essential difference between traditional cost accounting methods and activity based costing method is that, ABC can eliminate cross-subsidiaries between services or products. Traditional Costing Methods spreads overhead cost over entire customer base, products & services by using single or plant-wide rate called a predetermined overhead rate.

### *3.1 The Concept of Activity Based Costing (ABC) in Non Manufacturing Sector*

ABC has its roots in the manufacturing sector and most of the literature on ABC emphasizes its use in a manufacturing setting. Yet, it must be acknowledged that significant and growing economic activity takes place in the non-manufacturing sector (Chea, 2011). The ABC concept was gaining increasing popularity among entities in different branches of the economy (Szychta, 2010). It is important to note that ABC is not only appropriate for use in a manufacturing environment; it is also most appropriate for service organizations (Chea, 2011), so there is a need for ABC in any industry due to the increasing competition level in all aspects.

One of the main competitive industries is the dynamic telecom industry. All of this is affecting profitability margins for the products and services, which will urge management to devote more efforts to optimize cost by designing the proper costing tools and systems.

### *3.2 Cost Assignment under ABC*

There are five basic components to the activity based cost assignment methodology: resources, resources drivers, activity, activity drivers and cost object (Miller, 1995).

*Resources:* are an economic element that is applied or used in the performance of activities, salaries and materials for example, additional examples of resources include travel, rent, depreciation, utilities, insurance and supplies.

*Resource drivers:* are the basis for tracing resources to activities, a measure of the quantity of resources consumed by an activity, an example of a resource drivers is the percentage of total square feet of space occupied by an activity, this factor is used to trace a portion of the cost of operating the facilities to the activity. Example of common resource drivers for salaries, wages, rent, equipment depreciation and utilities include the following:

Salaries: Percentage of people's time spent on each activity, headcount assignment...

Rent: square feet of facility consumed by each activity

Equipment depreciation: Specific analysis to associate equipment use to each activity, machine time by activity

Utilities: Kilowatt hours' consumption by activity

*Activities:* The activity can be defined as any event, action, transaction, or work sequence that causes a cost to be incurred in producing a product or providing a service (Weygandt, Kieso, & Kimmel, 2004). Activities represent work performed in an organization; the cost of activities is determined by tracing resource of a receiving department.

*Activity drivers:* Like a resource driver that is used to trace resource to activities, an activity driver is used to trace activity costs to cost object, activity driver is defined as a measure of the frequency and intensity of the

demands placed on activities by cost object.

*The cost driver:* Any factor or activity that has a direct cause-effect relationship with the resources consumed (Weygandt et al., 2004). In ABC cost drivers are used to assign activity cost pools to products or services.

*Activity Cost Pool:* is the overhead cost allocated to a distinct type of activity or related activities (Weygandt, et al., 2004).

An example for the cost driver is the number of part numbers which is used to measure the consumption of material related activities by each product, the number of customer orders measures the consumption of order entry activities by each customer, sometimes an activity driver is used as an indicator of the output of an activity such as the number of purchase order prepared by the purchasing activity, this simply means that activity costs are traced to cost objects based on activity usage (consumption). When identifying and selecting activity drivers which is defined as a description of how an activity is used by a cost object, these level include activities that are traceable to the product (unit level, batch level, and product level cost) to the customer (customer level cost) to a market (market level cost) to a distribution channel (channel level cost) and to a project such as a research and development project (project level cost).

*Cost object;* cost object can be any customer, product, service, contract, project or other work unit for which a separate cost measurement is desired, the most common cost object is product or services cost. Activity drivers are used to trace activity costs to cost object.

### 3.3 Cost Structure in Telecom Companies

The cost structure in telecom companies can be divided into direct cost and indirect cost (overheads).

The direct cost includes all cost items that are incurred to provide services (calls, messages, data and other services) such as following:

Interconnection cost: the cost that is paid to other operators in case of initiating calls to other operators.

Revenue sharing: the cost that is paid to Telecommunications Regulatory Commission (TRC), and calculated as a percentage from the generated revenues after deducting the direct cost.

Content cost: the cost that is paid to content vendors based agreed up agreements that determine the revenue sharing between the two parties.

In addition to direct cost, there is indirect cost that includes various items like: network depreciation, license amortization, utilities, sites rents, frequency fees paid to TRC, network labor cost....

As we see, there is a major need to use the ABC methodology to allocate the indirect cost to the provided services. The main cost driver that is used to allocate the indirect cost to the provided services is the minutes. The TRC in Jordan has developed an ABC method called FAC (Fully Allocated Cost) for purpose, which will be explained later.

### 3.4 Activity Drivers

An example of how an activity of a sales department might be traced to customer segments (cost object) is illustrated in the figure 1:

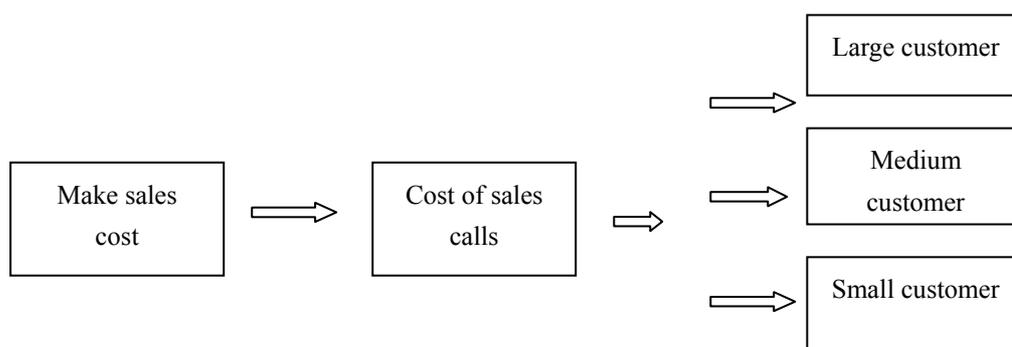


Figure 1. An activity of a sales department traced to customer segments

In this example, the activity of the sales department is make sales calls, the activity drivers is the number of sales calls, if the objective was to determine the selling cost associated with customer segments then the cost object

might be large customers, medium sized customers and small customers.

Table 2 summarizes example from telecom the cost assignment process:

Table 2. The telecom cost assignment process

Resource	Resource drivers	Activity	Activity drivers	Cost object
Paying money to Network vendors (CAPEX)	deploying network sites to cover populated area	sites depreciation cost pool	number of sending and receiving minutes	Postpaid & Prepaid Products

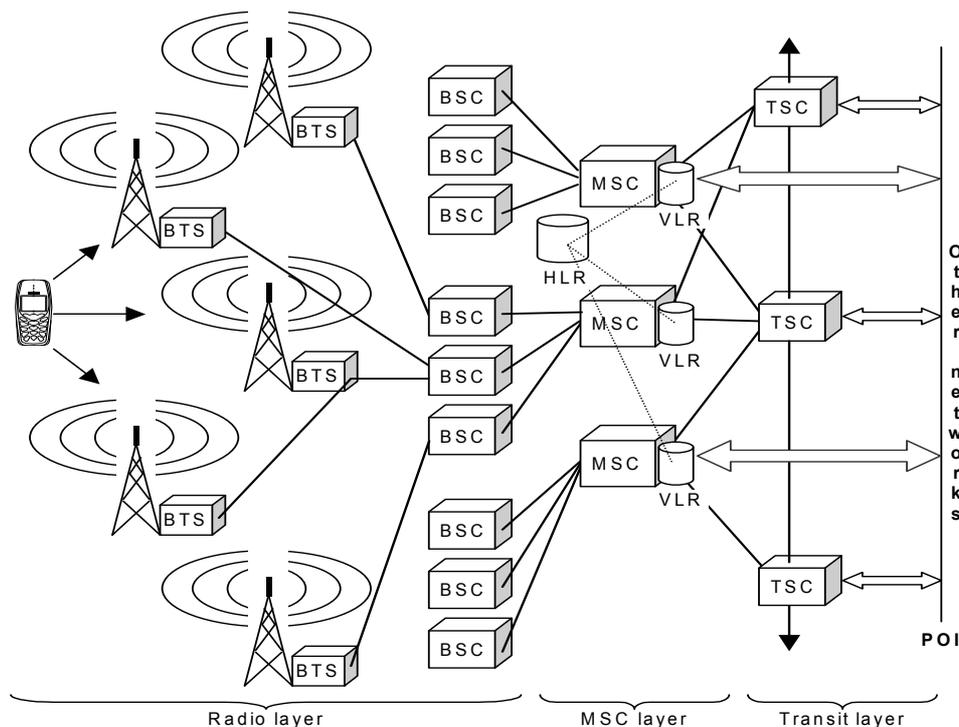
3.5 Implementation of ABC in Telecom (FAC)

As we mentioned above, the regulatory authority in Jordan developed a certain methodology emerged from ABC method to allocate the indirect cost like network depreciation, license amortization, utilities, sites rents, frequency fees paid to TRC, network labor cost....

A unit cost is determined for each of the following network elements by dividing the total pool cost of the network element by the number of units used by each service. Table 3 Reveals the flow chart of cost assignment (TRC, 2003).

Table 3. Flow chart of cost assignment for Jordanian telecom companies

BTS	Base Transceiver Station	BSC	Base Station Controller
MSC	Mobile Switching Centre	TSC	Transit Switching Centre
HLR	Home Location Register	VLR	Visitor Location Register
POI	Point of Interconnection		



3.6 Mobile Network Services

Mobile network operators offer a wide variety of services to customers but in reality most GSM mobile networks

offer 4 services (TRC, 2003): Call origination, Call termination, Messaging, Customer connection.

*Call origination:* This is the network facility to initiate a call irrespective of destination. This includes the use of 1 radio link to the handset from the base station, the link from the base station to the switch, switching and network transmission equipment, credit checking for pre-paid services and billing for post-paid services and, if the call is not terminated on the network, interconnection equipment.

*Call termination:* This is the network facility to enable a call to be answered, either by the user of a mobile handset or by an automatic voice mail facility. For calls which are answered by a customer, the same network infrastructure will be used as for call origination, a call which is terminated on voice mail will be routed to the voice mail platform, a call which is answered by a customer who is roaming abroad will be routed internationally and a call to a handset which is out of coverage and not making use of voice mail will normally receive a network announcement.

*Messaging:* The ability to send and receive text and picture messages using separate switching equipment in conjunction with the network used for call origination and call termination. It includes the basic elements of call origination and call termination and is usually between two mobile handsets.

*Customer connection:* Customer connection is the provision of services to customer to enable them to make and receive calls.

#### **4. Literature Review**

Although a few studies have explored the adoption of activity based costing in a non manufacturing companies, this paper relies on the literature review of recent relevant articles: Yapa & Kongchan (2012) identify the factors that influenced the process of ABC implementation in a Thai telecommunications company .The most significant factor influencing the implementation of ABC was a competitive environment followed by technology, organizational strategy, organizational structure, Corporate Social Responsibility and organizational culture. Government policies indirectly influenced the implementation of ABC. Jelsy & Vetrivel (2012) review the improvement in financial performance by implementing the Activity Based Costing in Spinning Mills. The study states that activity based cost information is more helpful in identifying the loss making products which will ultimately improve the profitability, ABC can be used for better cost prediction , used for budgeting and performance Measurement , and can be used as a Decision Support System (DSS). Al-Refa'ee (2012) identifies the extent of applying the Activity Based Costing System (ABC) in the field of iron and steel industry in Jordan. The researcher found that most iron and steel companies of Jordan do not apply the activity based cost system ABC, and the main reason for abstaining from applying the system is a firm conviction of the upper management, and the high costs of the application of the ABC system.

Chea (2011) Show that ABC is most appropriate for service organizations, not only appropriate for use in a manufacturing environment. ABC enables managers to understand profitability better, and help firm make better decisions based on more accurate costing information. The finding reveals that the successful implementation of ABC system as a tool for determining true costs in the service-oriented firm is a function of the followings: The impetus of the change must come from within the organization ,the adoption of ABC must first be bought by operating manager before it is sold to top management, all employees must be made to embrace ABC and be held accountable, and Effective sponsorship and how the rationale for ABC adoption is communicated to employees must be given a high priority. Segovial, J. & Khataie (2011) provide evidence that Activity-Based Costing and Management ABC/M have a positive effect on the telecommunication firm's financial performance. This study will assist telecommunications companies to learn how to become more effective and efficient in controlling and reducing their costs, thus developing a competitive strength. In addition, more accurate product profitability analyses will be determined; thus, identifying unintended product cross-subsidization, and leading to appropriate sales mix decisions.

Al-Khadash & Feridun (2006) investigating the link between the practice of Activity Based Costing (ABC), Just-in-Time (JIT), and Total Quality Management (TQM) as strategic initiatives and the improvement in corporate financial performance of the Industrial Jordanian Companies. Analysis shows that 27% of the companies under consideration use at least one of the strategic initiatives. In addition, the awareness level of the importance of using the strategic initiatives is found to be significantly high among the financial managers, but such awareness is not reflected in the implementation of these initiatives. Furthermore, strong evidence emerges that the use of strategic initiatives leads to improvement in financial performance of the companies under consideration.

#### **5. Methodology**

The methodology identifies hypotheses, research questions, and the procedures for collecting and analyzing the

data.

### 5.1 The Hypotheses of the Study

Based upon the arguments of the theoretical and empirical literature discussed previously, it is clear that the use of the ABC system leads to improvement in financial performance. Therefore, in order to achieve our ultimate goal this is to understand the impact that applying the ABC on improving the financial performance in telecom companies, the null hypotheses:

H01: applying the ABC will not help the telecom companies to reduce their expenses, which will lead to profitability enhancement.

H02: the needed infrastructure to implement the ABC is not available in telecom companies operations.

H03: there are no obstacles that prevent telecom companies to apply the ABC in their operation to control cost and optimize expenses.

To assess the hypotheses, questionnaires were designed in attempt to answer these questions which formulated and divided in to three aspects to serve the objectives of this paper:

1) Does the ABC system contribute in empowering the telecom companies to optimize expenses and increase profitability?

2) Do the telecom companies have the needed infrastructure to implement the ABC system to measure the cost related to the provided services?

3) Are there any obstacles that prevent telecom companies from applying the ABC costing system?

The questionnaire was structured into two mainly sections: section A contained information about the respondents, while section B contained questions adapted to answer the research problem. The information was gathered from key personnel who have a clear understanding of firms' management accounting system, financial performance, and can influence the change. In addition, interview with managers also used to collect data. In this research, 27 participants was used, they are staffs in management accounting and financial departments of five telecom companies in Jordan: Zain, Orange, Umniah, Mada, and Wi Tripe.

Respondents rate their opinion about the impact that ABC implementation has had on improving the financial performance by using scale of: Disagree, Slightly disagree, Neutral, Slightly agree, Agree, NA.

## 6. Data Analysis

For the purpose of analyzing the data and testing the hypotheses, the current paper used the descriptive statistical analysis such as the mean and the standard deviation, also one sample *t*-test is used to test the acceptance of the hypotheses, Cronbach alpha was used to test the reliability of the scale, it had been recorded at = 0.765 which is good ratio; it is higher than the accepted ratio of 60%. Variables determined in a questionnaire have been categorized into two types: The first category is associated with characteristics of respondents, while the second category related to the research problem. Data was collected and the result is shown as follow:

### 6.1 The First Category: Characteristics of Respondents

Characteristics of respondents consist of the participants educational background, availability of management accounting or costing analysis units, and size of the team working in these units. The following results of these variables are:

#### 1). What is your educational background?

Table (4) reveal that 81.5% of the sample has got at least bachelor degree and the rest has post-graduate degree, which gives more confidence of the result, because that all participants are educated, and are scientifically consciousness of the importance of the ABC.

Table 4. The participants educational background

Degree	Frequent	Percentage
Bachelor degree	22	81.5%
Post-graduate degree	5	18.5%
Other	-	-
Sum	27	100%

2). *Is there a management accounting or costing analysis unit in your company?*

It was found, as table (5) shows, that more than 92% of the sample has management accounting or costing analysis divisions in their companies.

This indicates the value that can be delivered from the management accounting team to support management to take right decision in such market that can be described as competitive market and needs effective response.

Table 5. Availability of management accounting or costing analysis units

Availability of these units	Frequent	Percentage
They have	22	92.6%
They don't	5	7.4%
Sum	27	100%

3). *The size of the team working in management accounting and costing unit*

Table (6) Reports that more than 92% of the sample is working in companies which their size of team working in management accounting and costing unit's ranges between three and more employees. The main tasks that were done within the management accounting and costing units include budgeting, reporting, products costing and profitability and business planning. That suggests a good background of respondents and the ability of them to deal with the challenges facing the strategic management in this competitive sector.

Table 6. Size of the team working in management accounting and costing unit

Size	Frequent	Percentage
Less than 3	-	-
Between 3-8	19	70.4%
More than 8	6	22.2%
Missing	2	7.4%
Sum	27	100%

4). *Do you have Professional certificates?*

It was found that 26% of the sample has professional certificate as table (7) shows. The main certificate that is related to management accounting is the CMA (Certified Management Accounting). So it was apparent from table (7) and table (4) that participants have educational background and Professional certificates, they are familiar of ABC system, and the answers reflect their perception and experiences about ABC.

Table 7. Participants professional certificates

Professional certificate	Frequent	Percentage
No	20	74.1%
Yes, CMA certificate	4	14.8%
Yes, other	3	11.1%
Sum	27	100%

6.2 *The Second Category: Results of the Research Questionnaires*

Detailed results of the paper questions are presented in the next tables, and the result of each hypothesis is discussed individually.

6.2.1 Hypothesis Analysis

**Hypothesis Ho1** stated the following:

Applying the ABC will not help the telecom companies to reduce their expenses, which will lead to profitability enhancement. The following test of hypothesis 1 relates to objectives of the implementation of ABC to reduce expenses, which will lead to gained benefits from implementing ABC.

Table 8. *Hypothesis Ho1*: The implementation of ABC will not lead to profitability enhancement

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1.1	The success of reducing indirect costs and operating expenses will enhance the competitive edge for each operator, which will lead to enhance the operator profitability.
1.2	The indirect cost constitutes a significant part of the total cost of providing service to the end user (customer).
1.3	One of main obstacle to identify the customer's profitability is to assign the customer's share from the indirect cost.
1.4	Customers' segmentation is important to determine the associated cost (direct or indirect) for each segment for measuring the profitability for each segment
1.5	Dividing the total cost into direct and indirect cost will enhance the measurement for total cost.
1.6	Creating cost drivers for allocating the indirect cost will enhance the measurement for the indirect cost.
1.7	Producing cause-relationship between the indirect cost and the services provided to customers will help to eliminate the unnecessary activities that have no value added to customers
1.8	Having activity based costing will help to price the provided services to customers.
1.9	The service pricing process is based on Cost Plus method by adding a markup for related cost of provided service.
1.10	The pricing process of each service is including the indirect cost of that service.
1.11	For each provided service, there is a cost pool and cost drivers that are used to calculate the total cost for that service.
1.12	The costing analysis results are affecting the marketing efforts to price any service.
1.13	Implementing activity based costing system in the company will increase the companies' profitability.

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Detailed results of the first paper questions are presented in the tables (9) & (10)

Table 9. Descriptive statistics of the first paper questions

Q	N	Minimum	Maximum	Mean	Std. deviation
Q 1.1	27	4.00	5.00	4.9259	.26688
Q 1.2	27	2.00	5.00	4.4444	.80064
Q 1.3	27	3.00	5.00	4.4074	.74726
Q 1.4	27	3.00	5.00	4.6296	.68770
Q 1.5	27	2.00	5.00	4.5926	.79707
Q 1.6	27	3.00	5.00	4.8148	.48334
Q 1.7	27	2.00	5.00	4.4815	.80242
Q 1.8	27	2.00	5.00	4.4444	.75107
Q 1.9	27	1.00	6.00	3.8889	1.31071
Q 1.10	27	1.00	6.00	3.5926	1.30853
Q 1.11	27	1.00	5.00	4.1852	1.03912
Q 1.12	27	1.00	6.00	4.4444	1.05003
Q 1.13	27	3.00	5.00	4.4444	.69798

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Table 10. Result of *t*-test of the first paper questions

T calculated	T tabulated	T sig.	Result of Ho1
11.587	2.0555	.000	Reject

One sample *t*-test was used to test our hypothesis and we found that (T calculated = 11.587) is greater than T tabulated. According to our decision rule: accept Ho if calculated value is less than tabulated value and reject Ho if calculated value is greater than tabulated value. So we will reject Ho and accept alternative one: applying the ABC will help the telecom companies to reduce their expenses, which will lead to profitability enhancement.

Consequently, the use of ABC method has direct related to the improvement of financial performance: the success of reducing indirect costs, through producing cause-relationship between the indirect cost and the services provided to customers which will help to eliminate the unnecessary activities that have no value added to customers.

**Hypothesis H02** stated the following:

The needed infrastructure to implement the ABC is not available in telecom companies operations. The following test of hypothesis 2 consists of variables shows the availability of infrastructure to implement the ABC.

Table 11. *Hypothesis H02*: The availability of infrastructure to implement the ABC

- |  |
|--|
| 2.1 There is a specialized unit/ section to analyze the cost in your company.  |
| 2.2 Having data mining tool is important to conduct the costing analysis.  |
| 2.3 The cooperation between the different company units (Finance, marketing and sales) are supporting the implementation of the ABC process to price and analyze the costing for any provided service. |
| 2.4 Specialized training was done to implement the ABC Analysis.   |

Detailed results of the second paper questions are presented in the tables (12) & (13)

Table 12. Descriptive statistics of the second paper questions

Q	N	Minimum	Maximum	Mean	Std. deviation
Q 2.1	27	2.00	6.00	4.4444	.97402
Q 2.2	27	3.00	5.00	4.7407	.52569
Q 2.3	27	3.00	5.00	4.5926	.63605
Q 2.4	27	1.00	5.00	3.2963	1.43620

Table 13. Result of *t*-test of the second paper questions

T calculated	T tabulated	T sig.	Result of Ho2
10.642	2.0555	.000	Reject

One sample *t*-test was used to test our hypothesis and we found that (T calculated = 10.642) is greater than T tabulated. According to our decision rule: accept Ho if calculated value is less than tabulated value and reject Ho if calculated value is greater than tabulated value. So we will reject Ho and accept alternative one: the needed infrastructure to implement the ABC is available in telecom companies operations, to enhance the performance of these companies.

**Hypothesis H03** stated the following:

There are no obstacles that prevent telecom companies to apply the ABC in their operation to control cost and optimize expenses.

The following test of hypothesis 3 is concerned with the obstacles of ABC implementation.

Table 14. *Hypothesis H03*: The obstacles of ABC implementation

3.1 The Jordanian telecom industry is witnessing a tough competition between all existing operators to increase their market share and revenue share
3.2 The price of service is determined based on supply and demand factors , not based on costing.
3.3 The tough competition in telecom industry is affecting the price of the service regardless of the service costing.
3.4 The regulatory authorities are affecting the process of pricing the services.
3.5 The upper management is convinced with importance of implementing the ABC process.
3.6 The process of dividing the cost into direct and indirect cost is difficult to implement.
3.7 The needed investment in ABC systems and human resources are supported by management

Detailed results of the third paper questions are presented in the tables (15) & (16)

Table 15. Descriptive statistics of the third paper questions

Q	N	Minimum	Maximum	Mean	Std. deviation
Q 3.1	27	5.00	5.00	5.000	.00000
Q 3.2	27	1.00	5.00	3.4444	1.21950
Q 3.3	27	2.00	5.00	4.2593	.90267
Q 3.4	27	1.00	5.00	4.2963	.99285
Q 3.5	27	1.00	5.00	3.9259	1.14105
Q 3.6	27	1.00	5.00	3.2222	1.21950
Q 3.7	27	1.00	5.00	3.7407	1.12976

Table 16. Result of *t*-test of the third paper questions

T calculated	T tabulated	T sig.	Result of Ho3
2.278	2.0555	.031	Reject

One sample *t*-test was used to test our hypothesis and we found that (T calculated = 2.278) is greater than T tabulated. According to our decision rule: accept Ho if calculated value is less than tabulated value and reject Ho if calculated value is greater than T tabulated value. That means we will reject Ho and accept alternative one: there are obstacles that prevent telecom companies to apply the ABC in their operation to control cost and optimize expenses, which indicated the importance of overcoming the obstacles.

## 7. Summary

In our competitive environment, the cost accounting system should accomplish cost efficiency without any negative impact on the quality of the provided services; provide the proper information to the management for taking the rational decisions and to continue quality improvement in the various organizations' operations. Activity based costing (ABC) theoretically is targeting to accomplish all of the mentioned objectives.

There is a need for ABC in the telecom industry in Jordan due to the increasing competition level in all aspects (Rank 1 compared to other regional countries), telecom sector in Jordan has been subjected to rapid innovations. All of this is affecting profitability margins for the products and services, which will urge management to devote more efforts to optimize cost and expenses by designing the proper costing tools and systems. Hence, this paper emphasizes the impact of applying the ABC on improving the financial performance in telecom companies.

The information was gathered from key personnel who have a clear understanding of firms' management accounting system, financial performance, and can influence the change. 27 participants was used, they are staffs in management accounting and financial departments of five telecom companies in Jordan: Zain, Orange, Umniah, Mada, and Wi Tripe. In addition, interview with managers also used to collect data. The result achieved

from the analysis of the questionnaire and interviews indicated a significant positive relationship between applying telecom companies the ABC and reducing their expenses, which will lead to profitability enhancement. In addition we found that the needed infrastructure to implement the ABC is available in telecom companies operations, but there are obstacles that prevent telecom companies to apply the ABC in their operation. Consequently, more studies are required to overcome such obstacles.

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