Customer Profitability Analysis Through Activity-Based Costing Approach in the Algerian Telecom Sector, A Field Study

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Abstract :

  This study aims to clarify the conceptual framework for customer profitability analysis based on the activity-based costing approach and its reality within the telecommunications sector in Algeria. The study was carried out using the descriptive and the analytical method applied to a sample of 72 employees including accountants, managers and customer service officials from mobile phone companies in the southeastern states of Algeria (El Oued, Ouargla, and Biskra) in the year 2020. The statistical program SPSS 24 was used in measuring and testing the hypotheses of the study. A high degree of awareness of the importance of conducting a customer profitability analysis was reached. Furthermore, the activity-based costing approach has contributed to a fair estimation of costs according to different customer tiers. However, this was met with a number of challenges. Institutions active in the telecommunications sector must work to bypass them in order to achieve the customer satisfaction.

*Key Words***:** Customer Profitability; Cost Analysis; Activity Based Costing.

JEL Classification : D23, M31**.**

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Introduction:

   As a result of the developments that the world has witnessed under globalization, open global markets with its conditions of intense competition and the desire to maximize profits, as well as change in the business environment, the customer's awareness of the processes production and quality has increased. This resulted in a reduced life cycle for products as organizations began seeking to add new features whether in production or services with the aim of adding competitive advantages. Thus the attention of organizations has shifted towards the customer as the main focus in the performance of its activity and its survival. Alongside controlling costs to achieve a competitive advantage, providing satisfactory services to the customer has become one of the most important variables that ensures the economic viability of the company. Subsequently, various costing concepts and approaches have emerged with the aim of accurately understanding costing behaviors which prioritizes creating value for the customer.

The telecommunications sector is among the sectors that have witnessed rapid developments. The resulting increase in competition has led to a reduction in the life cycle of the product (service), high indirect costs due to costly research and development expenses, a sharp change in cost behavior as a result of these developments, and thus inaccuracy in measuring indirect costs according to the traditional method. The need for modern management methods that focus on activities has emerged to help improve profits through the process of measuring and analyzing customer profitability. The activity-based costing method (ABC) provides an appropriate methodology for analyzing customer profitability, and helps management in performing its functions of planning, controlling, making appropriate administrative decisions, optimal use, and allocation of resources.

The main problem: based on what was mentioned above on the analysis of customer profitability and its importance for institutions, the main problematic is formulated as follow: **How** *important is a customer profitability analysis based on activity based costing in the Algerian telecom sector?*

Sub-questions:
- How important is the analysis of customer profitability in the Algerian telecom sector according to the study sample at a significance level of 5%?
- To what extent does the activity-based costing method contribute to the analysis of customer profitability in the Algerian telecom sector according to the study sample at a significance level of 5%?
- What are the challenges related to the application of customer profitability analysis in the Algerian telecom sector, according to the study sample at a significance level of 5%?

Study hypotheses: To answer the study questions, the following tentative answers are proposed:
- The analysis of customer profitability in the Algerian telecom sector is of great importance according to the study sample at a significance level of 5%.
- The activities-based cost system contributes significantly to the analysis of customer profitability in the Algerian telecom sector according to the study sample at a significance level of 5%.
- There are a number of challenges of significant impact related to the application of customer profit analysis in the Algerian telecom sector, according to the study sample, at a significance level of 5%.

Study Objectives: The study aims to:
- Review the concepts related to the analysis of customer profitability, and clarify the different methods used;
- Demonstrate the potential of the activity-based costing method, considered as one of the modern management accounting techniques, in analyzing customer profitability;
- Elaborate how to distinguish between customers within different tiers which helps companies to decide on pricing;
- Address the applied reality of analyzing customer profitability in companies operating in the telecommunications sector in Algeria.

I. Literature Review:

1. The study of (Kostakis, Odysseas, & Kounis, 2011) introduces a methodology for activity-based modelling of customer profitability analysis (CPA) in hotels. It proposes a methodology for defining and effectively addressing cost drivers in the hotel industry. Activity-based costing (ABC) uses as input the corresponding output produced by the simulation of the relevant cost drivers. The presented methodology eliminates the need to estimate empirical distributions of all simulated cost drivers. This is achieved with the use of data mining techniques, particularly ARM. ARM finds dependencies between a cost driver, whose estimation is time-consuming, with another cost driver, which can easily be calculated. This dependency can lead the user to the estimation or calculation of the former. The methodology provides more accurate accounting information in regard to the various market segments in the hotel industry in a CPA context.

2. The study of (Wei, 2011) was aimed at unravelling the practical complexities of implementing ABC for CPA purposes. It confirm that ABC as an alternative paradigm to traditional cost-based accounting systems. Customer Profitability Analysis (CPA) is an important path to a more successful business operation, offering new insights into enhancing company performance. A well-designed and implemented ABC system is a powerful aid to management evaluation and decision-making, thereby improving organizational performance.

3. study of (Cokins, 2015) identifies that companies shift from a product-centric focus to a customer-centric focus. Unfortunately, many companies' managerial accounting systems aren't able to report customer profitability information to support analysis for how to rationalize which types of customers to retain, grow, or win back and which types of new customers to acquire. Activity-based costing (ABC) is the method that will economically and accurately trace the consumption of an organization's resource expenses to products and to the types and kinds of channels and customer segments that place varying degrees of workload demand on the company. The crucial challenge is not to use ABC just to calculate valid customer profitability information from transaction data but to really use the information and use it wisely. The benefit comes from identifying the profit-lift potential from customers and then realizing the potential with smart decisions and actions.

4. The study of (Faria, Ferreira, & Trigueiros, 2018) investigates the use of customer profitability analysis (CPA) in four and five-star hotels located in Algarve (Portugal). A structured questionnaire collected through personal interviews showed that CPA is far from widespread in hotel management; instead, hotels accumulate costs in profit centers and in cost centers. None of the surveyed hotels had adopted activity-based costing, despite this technique being viewed as the most appropriate to calculate individual customer profitability.

-The gap of studies: Our paper addresses the CPA dimension of CA because several studies have determined organizations are more likely to use CPA over the other four CA dimensions such as (Tanima & Bates, 2015) we wish to investigate why organizations fail to implement CPA despite the belief it offers managerial

benefit. Many studies suggest the customer profit calculation needs to extend beyond a traditional gross margin to include all costs. Activity-based costing has been proposed by some studies for that purpose, and this combination of the two methods has been studied theoretically and practically in some sectors such as hotels. But we did not find, according to the study that was available, a study that combines ABC and CPA. In the telecommunications sector and in Algeria, so this sector was a spatial field for our study in order to cover this research gap.

II. Conceptual framework of Activity Based Costing:

In recent years, managers have begun to embrace activity-based costing; ABC (Rimer, 2000, p. 115) as a very efficient management accounting tool that identifies the true production costs and offers an incentive to improve continuing processes in the firm or even re-engineering that is not necessarily established through traditional accounting systems (Van Der Poll, 2015, p. 11). ABC is a method of evolving cost estimates in which the project is subdivided into discrete, a quantifiable work unit or activities which must be defined in order that productivity can be measured in units. A cost estimate for each operation is prepared after the project is broken down into its activities. For each activity, these individual cost estimates would include all costs of labor, materials, equipment, and subcontracting and including overhead. To obtain an overall estimate each complete individual estimate is added to the others. Contingency and escalation can be calculated for each activity or after all the activities have been summed (Bogdănoiu, 2009, p. 5).

ABC is one creative costing approach intended to cope with the limitations in conventional costing systems. ABC, pioneered by Robert Kaplan, Robin Cooper and H. Thomas Johnson is a costing technique used explicitly trace overhead costs directly to cost objects, i.e. products, processes, services, or customers, and to help managers make the right decisions regarding product mix and competitive strategies (Skaik, 2006, p. 5).

In general, ABC is an approach for allocating overhead costs. More accurately, ABC allocates overhead to multiple cost pools of activity and then assigns cost pools of activity to products and services through cost drivers. To understand this more clearly, some meanings some are applied to words that make up the definition: In ABC, an activity is any event, action, transaction, or a sequence of work that suffers costs when making a product or supplying a service. The overhead cost attributable to a specific of activity (e.g., ordering materials or setting up machines) is an activity cost pool. Any factor or activity which has a direct cause-effect relationship with the resources consumed is a cost driver. The reasoning behind the allocation of costs with ABC is simple: consumption of products, activities, and activities consume resources. ABC allocates overhead in a two-stage process (Weygandt, Kimmel, Kieso, & Aly, 2018, pp. 402-404)which produce Activity-based information.

The accounting can help companies by using ABC to increase their understanding of how to reduce emissions as an integrated way of identifying opportunity costs of

activities that have become important issues for stakeholders (Almihoub, Mula, & Rahman, 2013, p. 124).

According to Turney, the ABC model contains two types of information to help answer these questions: cost information and process information. Cost information explains the cost of work and its use. Process information explains why the work is done and how well it is performed, and it describes relationships with customers and suppliers. Figure 1 shows a graphical representation of activity-based information called the two-dimensional model. Each type of information in it has a defined role in the continuous improvement process. This fact-based process uses activity-based information (ABI) to describe work and its results. It applies this information to a wide variety of strategic and tactical issues such as what price to set, what product mix to sell, and which improvements to make. (Turney P. P., 1993, p. 29). Depending on this figure 1 we conclude that ABI which is ABC analysis and consist of (Pandikumar, 2009, p. 423):

1. Activity Analysis:

The activities are to be studied in light of the value addition. The importance of the activities is to be probed from time to time. The following distinction between the value and non-value added activities will certainly help to understand more about them:

Table 1 : **« Values &Non –values added activities »**

Values added activities	Non -values added activities
Necessary for the performance of the process.	Not Necessary for the performance of the process Not.
Valued either by internal or external customers.	Not valued either by internal or external customers.
Value addition is usually given out of the willingness of the customers.	Not willing for the receipt of the activities.
Add to cost of the product or service which the customers are willing to pay.	Add to cost of the product cost but not the customers are willing to pay.

Source: (Pandikumar, 2009, p. 423)

2. Cost Driver Analysis:

This analysis is only on the basis of causes which normally make the firms to perform the activities. The efficiency and inefficiency of the activity are studied with reference to a particular reason. In other words, the key factor to perform an activity normally reveals the ultimate strengths and weaknesses. The major responsibility of the manager under the ABM is to study the root cause of the problem for inefficiency;

3. Performance Analysis:

The performance of activities is to be analyzed only in terms of the goals or objectives **of** the activity centers in order to have continuous improvement in the process.

III. Conceptual framework of Customer Profitability Analysis:

In today's hypercompetitive marketplace, customers are increasingly powerful; if they are dissatisfied with a product and/or a service from one organization, a competitor is often just one moment away. By employing this approach,

organizations can use information about each customer such as needs, wants, and previous purchases to create offers that customers are more likely to accept. That is, the Customer Relationship Management (CRM) approach is designed to achieve customer intimacy. CRM is a customer-focused and customer-driven organizational strategy. That is, organizations concentrate on evaluating customers' requirements for products and services and then providing high-quality, responsive service. The concentration of modern organizations has converted from conducting business transactions to customer relationship management. Generally, organizations realize that customers are the core of a successful enterprise, and the success of the enterprise relies on effectively managing relationships with them. CRM constructs sustainable long-term customer relationships that create value for the customer as well as for the company. CRM assists companies obtain new customers and retain present and extend their relationships with profitable current customers. Retaining customers is especially important because recur customers are the largest generator of enterprise revenue. As well, organizations have long recognized that winning back a customer who has shifted to a competitor is vastly more expensive than keeping that customer primarily satisfied. (Rainer Jr., Prince, & Cegielski, 2014, p. 347). Customers are the backbone of every company's costs and without potential or actual customers, there will be no cause for firms to consume resources. In other words, customers are the essential drivers of cost activities; hence they are the most strategically important factor for expounding cost and revenues created by a company (Albalaki & Majeed, 2018, p. 1547). Subsequently, the customer has received a lot of attention, as a result of this, many management methods have emerged that focus on the customer as CRM. For example, Customer profitability that is referred to in the literature with several different terms, including lifetime value, customer lifetime value, customer valuation, customer lifetime valuation, customer relationship value, and customer equity (Mulhern, 1999, p. 26).

CPA is a contemporaneous management accounting technique that adopts the customer as the unit of analysis, offering information to manage the customer mix from a profit perspective (Faria, Ferreira, & Trigueiros, 2018, p. 65).CPA is also an important management accounting tool that depends on the recognition that each customer is different. Therefore, each dollar of revenue or each dollar of cost generated by the customer does not contribute evenly to a company's profitability. CPA's value lies in its ability to ameliorate strategic decision-making (Harvey & Service, 2009, p. 4). CPA expresses the process of allocating revenues and costs to customer segments or individual customer accounts, such that the profitability of those segments and/or accounts can be calculated (Van Raaij, 2005, p. 373). CPA includes the identification of revenues, costs, and profit by an individual customer or customer group. CPA eliminates the necessity for management to depend solely on profit and loss account figures when considering strategies to control costs. CPA includes the evaluation of revenues and expenses in terms of the customer's contribution to profits. Management is able to concentrate on the effectiveness and efficiency of operating departments in servicing different customer's needs by

recognizing the impact of the customer on the organization's profitability in this way. Management can cut costs, without creating an identical reduction in customer satisfaction by removing activities that do not add value to the trading relationship with customers (Noone B. M., 1996, pp. 21-23).

IV. Customer Profitability Analysis and Activity Based Costing approach:

CPA has become one of the most significant aspects of manager's strategic planning, it is considered a landmark of company profitability and that customer cost information is crucial in the decision-making process. In spite of early references to CPA at the beginning of the 1960s, it was only with the emergence of activity-based costing in the late 1980s, that attention was accorded to the subject. By revealing the linkages between the activities performed in the firms and the demand for organizational resources, ABC offers managers a clearer idea of how customers generate revenues and use resources. That is why CPA is usually involved as a part of ABC where customer profitability is one of the modern dimensions related to company profitability for the purpose of improve its strategic vision and performance management (Cardoş & Cardoş, 2014, p. 56).ABC was initially applied to product profitability analysis, its scope has expanded with ABC techniques being used by firms in CPA systems. This approach views the customer rather than the product as the cost object for relevant customer-driven activities. "This sort of information derived from ABC analysis offers management with a clearer insight into the real profitability of their customer groups and offers a sound basis for customer mix decisions both in the short and long term" (Bordovsky, VanZante, & Wagman, 2005, p. 36). While most firms will know the customer revenues, many firms are unaware of all costs linked with customer relationships. Generally, product costs will be known for each customer, but sales and marketing, service, and support costs are mostly treated as overhead. The impulse for the growing attention for CPA is twofold (Van Raaij, 2005, p. 373) (Faria, Ferreira, & Trigueiros, 2018, p. 67) (Van Raaija, Vernooijb, & Van Triestc, 2003, p. 573):

1. First, the emergence ABC in the 1987 led to an augmented awareness of the varying extent to which the manufacturing of different products used a firm's resources. When using ABC, firms first determine cost pools: categories of activities performed within the organization. For all cost pools, cost drivers have specified: units in which the resource consumption of the cost pool can be expressed. Costs are then assigned to cost objects based on the extent to which these objects require certain activities measured in cost driver units. Once it became approved that not every product requires the same types and same levels of activities, it was a small step to know that customers, too, differ in their consumption of resources. The size and number of orders, the number of sales visits, the use of helpdesks, and various other services can be very various for each customer. Accordingly, some customers afford more relationship costs than others, leading to different levels of customer profitability. Therefore, two customers who buy exactly the same product mix for the same prices generating exactly the same profit margins on their purchases can have different relationship costs, leading to different levels of customer profitability. Even though this has long been

acknowledged, it fits better in the logic of ABC than in the traditional costing systems

2. Second, information technology allows it possible to register and analyze more customer data—both in type and in amount. As data such as number of orders, numbers of services calls, etc. are stored at the level of the individual customer, it becomes possible indeed to calculate customer profitability.

To implement ABC to customers, a customer cost hierarchy categorizes costs linked to customers into different cost pools on the basis of various types of cost drivers, or allocation bases, or diverse degrees of difficulty in determining cause-and-effect or benefits-received relationships. Customer cost categories might comprise (Bordovsky, VanZante, & Wagman, 2005, pp. 36-37):

- **Customer output unit-level costs**: The activities cost to sell a unit to a customer, for instance, product handling costs;
- **Customer batch-level costs**: The activities cost attached to a group of units, for example, costs incurred to process orders or to make deliveries;
- **Customer-sustaining costs**: The activities cost to support individual customers, regardless of the number of units or batches, as costs of visiting customers or costs of displays at customer locations;
- **Distribution-channel costs**: The activities cost linked to a particular distribution channel rather than to each unit, batch, or specific customer, such as the salary of the manager of a retail distribution channel;
- **Corporate sustaining costs**: The activities cost that cannot be tracked to individual customers or distribution channels, for example, top management and general administration costs.

According to Chang et al. (2012), CPA should be applied in an environment where the ABC system could be better developed. An ABC analysis could help to determine what resources customers had consumed and allocated minutely and appropriately; could offer information on the range, cost, and consumption of activities. ABC permits a customer profitability analysis by comparing the revenue flows with the service costs linked with particular customers or customer groups. Even customers buying the same products vary in their resource consumption due to various service costs, the number of orders. ABC permits determining and separate the profitable customers from the unprofitable ones, it allows determining customer profiles in terms of profitability and loyalty. According to Albu & Udroiu (2009) managers can determine four categories of customers: partners, stars, passengers, and faithfuls. Partners are the best customers because they generate high profitability, and they are loyal as well. Firms must pay specific attention to stars because they create high profitability but their loyalty level is low. On the other hand, passengers and faithful are those customers who are loyal but the level of profitability is low. In such cases, companies must reanalyze constantly the costs related to serve this category (Cardoş & Cardoş, 2014, pp. 56-57).

Fig. 1 : « Customers profitability by using ABC »
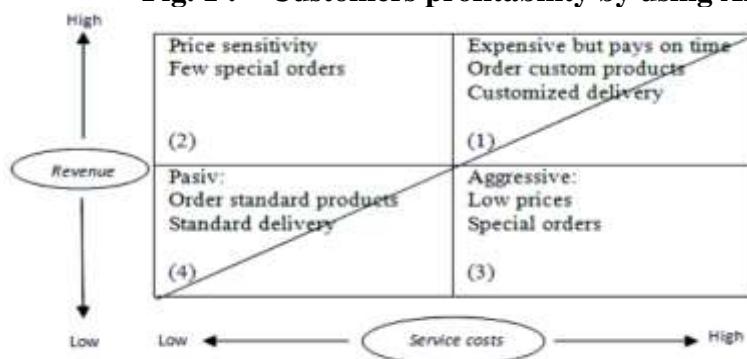
Source: (Stefan & Réka, 2010, p. 573)

The figure above shows that there are different ways in which firms can have profitable customers. There are category 4 customers who can easily be served but at low cost and low prices. Alternatively, expensive category 1 customers can be profitable if the revenues gained compensate the customer costs. The most vulnerable customers (category 2) are those who create high revenues but have low servicing costs. Firms should pay special attention to those; they must give discounts and particular services to keep them faithful and loyal. The fourth category (category 3) is represented by those customers who create low revenues and include high customer costs. In such cases, firms must rethink their internal processes, improve manufacturing processes, and renegotiate with customers the process, the delivery terms, and private orders. ABC allows managers to identify and separate the profitable customers from the unprofitable ones. Furthermore, it permits managers to identify customer profiles in terms of profitability and loyalty. (Stefan & Réka, 2010, p. 574).

V. Method and Tools:

The field aspect of the study is important because it projects theoretical knowledge onto reality through the study sample. It is necessary therefore to give a presentation about the tools used in all data and what is related to them, as well as the statistical methods used to process those data in order to visualize the study population, and prove or deny the hypotheses proposed.

1. Data Collection Tool:

In order to project theoretical knowledge on the field aspect of the study and collect various data, the questionnaire has been used as a tool for data collection as follows:

- Personal and occupational characteristics: it included age, educational qualification, years of experience, institution, it was presented in 04 statements;
- The first axis: the importance of analyzing customer profitability, it came in 05 statements;
- The second axis: This section came in 05 statements about the contribution of the activity-based costing system to the customer profitability analysis;

▪ Axis 3: This section was summarized in 05 statements about the challenges related to implementing customer profitability analysis;

2. Population and sample of the study:

This section presents the statistical population from which the study sample is drawn.

✓ **Study population:** It was emphasized in choosing the field study population that its members would have sufficient knowledge of the topic with scientific and practical experience. The study included a group of department heads and officials with sufficient knowledge of the cost accounting system on the one hand, and a relationship with customer services within the telecommunications sector in Algeria on the other.

✓ **Study sample:** The questionnaire was distributed to the intended sample of the previously mentioned groups in El-Oued, Ouargla and Biskra. The sample is composed of workers in the telecommunications sector for the three clients (Mobilis, Djezzy and Ooredoo). In total, 95 forms were distributed through an electronic questionnaire sent via e-mail, but only 72 answers were retrieved. (See Table 2)

Table 2 : « Statistics of the distributed forms »

Statement	Number of questionnaires	percentage
Total distributed forms	95	100%
Unreturned forms	23	24.21%
Returned forms	72	75.79%

Source: Prepared by researchers based on the retrieved forms.

The questions were prepared according to the five-point scale of Rensis Likert.

3. Validity and reliability of the study tool:

In order to realize this study, the reliability and validity of the questionnaire was first achieved through judgment, then by calculating the Cronbach Alpha coefficient.

3.1. Validity of the study instrument:

The validity of the tool was verified through the internal consistency of the axes of the study tool, by calculating the correlation coefficients between the statements of each axis with the total of the axis, and this is shown in Table 03.

Table 3 : « The correlation between the terms and its axes »

Axes	Questions	1	2	3	4	5
The first	Pearson correlation coefficient	0.622	0.711	0.653	0.614	0.679
	Level of signification	0.000	0.000	0.000	0.000	0.000
The second	Pearson correlation coefficient	0.804	0.787	0.661	0.792	0.681
	Level of signification	0.000	0.000	0.000	0.000	0.000
The third	Pearson correlation coefficient	0.709	0.750	0.712	0.818	0.763
	Level of signification	0.000	0.000	0.000	0.000	0.000

Source: Prepared by researchers relying on the outputs of the SPSS program.

We note that the values of the correlation coefficients between the axes and there questions were mostly positive, and ranged between medium and strong. The

level of significance is 0.05, therefore it can be said that there is an internal consistency between the deferent expressions of the deferent axes. Thus, all statements are valid, and can be relied upon in the analysis.

3.2. Stability of the study tool:

In order to evaluate the reliability of the measurement tool used in this study which is the questionnaire, the Cronbach Alpha coefficient was calculated. The results are presented in the table below (see Table 04):

Table 4 : « Test results of the stability of the study tool »

The axes	Number of questions	Stability coefficient	Factor of honesty
First axis	05	0.697	0.835
Second axis	05	0.748	0.865
Third axis	05	0.805	0.897
All axes	15	0.871	0.933

Source: Prepared by researchers relying on the outputs of the SPSS program.

The above table calculates the stability factor and its square root which represents the validity factor for the various segments composing the questionnaire, and its total statements surveyed as a whole. It is noted that the value of the stability coefficients ranged between a minimum of 0.697 and 0.871, which is considered good and very acceptable, for it exceeds 0.6. The same is true for the honesty coefficient, which was mostly close to 0.9. This reflects the validity of the respondents' answers.

From what has been mentioned above, it can be said that the respondent's answers are considered valid for study and can be relied upon.

4. Normal Distribution Test:

In order to determine the type of statistical analysis that can be used in this study, a normal distribution test was performed using the Kolmogorov Smirnov test (see Table 05).

Table 5 : « Results of the normal distribution test »

The axes	Number of questions	Test Statistic	Asymp. Sig	Statistical decision
First axis	05	0.127	0.071	Normal distribution
Second axis	05	0.115	0.176	Normal distribution
Third axis	05	0.091	0.200	Normal distribution

Source: Prepared by researchers relying on the outputs of the SPSS program.

Through the table, It is noticed that the probability values for the test for the three axes were greater than 0.05. Therefore, we accept the null hypothesis that says that the three axes of the questionnaire follow a normal distribution. Thus, the parametric tests approach can be followed in analysis.

VI. Presentation and discussion of results:

Presenting and discussing the results is an important part of the research, as it works to project the theoretical aspect to the study sample, and from there an attempt to generalize these results to the study population.

1. Presentation of the personal and functional characteristics of the study sample:

In the following, the personal and functional characteristics of the study sample are presented, which were included due to its relationship with the rest of the study and its various axes. These characteristics were presented through what was stated in the questionnaire form (see Table 06).

Table 6 : « Distribution of the study sample according to the various personal and occupational variables »

Age			qualification		
Varieties	Number	Ratio	Varieties	Number	Ratio
30 years or less	16	22.22%	license	24	33.33%
Between 31-40 years old	33	45.83%	Master	38	52.78%
Between 41-50 years old	17	23.61%	Magistrate	06	8.33%
More than 50 years old	06	08.33%	PhD	04	05.56%
Total	72	100%	Total	72	100%
Experience			**Company**		
Varieties	Number	Ratio	Varieties	Number	Ratio
05 years or less	17	23.61%	Mobilis	40	55.56%
Between 10-6 years old	30	41.67%	Djezzy	17	23.61%
Between 11-15 years old	09	12.5%	Ooredoo	15	20.83%
Over 15 years old	16	22.22%	/	/	/
Total	72	100%	Total	72	100%

Source: Prepared by researchers based on retrieved forms.

Through the table, it is clear that most of the study sample members ranged between 31 and 40 years old, at a rate of 45.83%. Academic qualifications varied based on the questioned sample, most of which were holders of a master's degree at a rate of 52.78%. The companies in which the study sample worked varied to cover the three mobile phone clients. Additionally, the years of experience in the year of the sample under study varied, as it generally ranged between 6 years to 10 years, with a percentage of 41.67%. In general, it can be said that the majority of the study sample have years of considerable experience. As a result of the above personal and occupational characteristics, the sample under study fulfills the research requirements.

2. Results of opinions of respondents on the importance of customer profitability analysis:

In order to answer the problematicand explain to the importance of analyzing customer profitability in the Algerian telecom sector according to the study sample, two tables have been prepared (Table No. 07 and Table No. 08):

- Table No. 07 shows the opinions of the sample members according to various expressions about the importance of analyzing the customer's profitability:

Table 7 : « Results of respondent's opinions of various statements about the importance of customer profitability analysis »

Phrases of the first axis	Statistical indicators		Relative importance
	Mean	**S-D**	
1- Customer profitability analysis helps to identify profitable clients from non-profitable ones.	3.71	1.25	Great degree
2- Customer profitability analysis provides a clear picture of the services required of clients.	3.78	1.03	Great degree
3- Customer profitability analysis helps management make decisions to maximize customer value.	3.82	1.18	Great degree
4- Customer profitability analysis helps in accurate pricing of services.	3.64	1.11	Great degree
5- Customer profitability analysis contributes to enhancing customer loyalty.	3.75	0.77	Great degree

Source: Prepared by researchers relying on the outputs of the SPSS program.

Through the above table and depending on the various paragraphs, the arithmetic mean ranged between 3.64 and 3.82, which were all in the large degree category. Additionally, its standard deviations ranged between 0.77 and 1.25, which expresses the non-large discrepancy (consensus) in responses.
- Table No. 08 shows the opinions of the sample members for the total axis on the importance of analyzing customer profitability as follows:

Table 8 : « The results of the opinions of total axis of the importance of analyzing customer profitability »

First axis	Statistical indicators			Relative importance
	Mean	**S-D**	**Sig T**	
	3.64	0.69	0.000	Great degree

Source: Prepared by researchers, depending on the outputs of the SPSS program.

Through the above table the arithmetic mean for the total of this axis is 3.64 which are classified in the category of large degree. The standard deviation was of 0.69 which reflects the consistency and consensus in the responses of the sample members. The probability value of the T-statistic for the total of this axis was less than 0.05. Consequently, there is a statistical significance of this large degree expressed, and thus the results can be generalized to the Algerian telecom sector.

3. Results of respondents 'opinions about the contribution of the activity-based costing system to the customer profitability analysis:

In order to answer the problematic and explain the extent to which the activities-based costing system contributes to the analysis of the customer's profitability in the Algerian telecommunications sector according to the study sample, two tables were prepared (Table No. 09 and Table No. 10):
- Table No. 09 shows the opinions of the sample members according to various expressions on the extent of the contribution of the activity-based costing system to the customer profit analysis:

Table 9 : « Results of respondent's opinions on the contribution of the activity-based costing system to the customer profitability analysis »

Phrases of the second axis	Statistical indicators		Relative importance
	Mean	**S-D**	
1- Customer profitability analysis helps to identify profitable clients from non-profitable ones.	3.55	1.20	Great degree
2- Customer profitability analysis provides a clear picture of the services required of clients.	3.82	0.90	Great degree
3- Customer profitability analysis helps management make decisions to maximize customer value.	4.10	0.73	Great degree
4- Customer profitability analysis helps in accurate pricing of services.	3.89	0.79	Great degree
5- Customer profitability analysis contributes to enhancing customer loyalty.	3.84	0.80	Great degree

Source: Prepared by researchers relying on the outputs of the SPSS program.

Through the above table and depending on the various paragraphs, the arithmetic mean ranged between 3.55 and 4.10 which were all in the large degree category. Also, the standard deviations ranged between 0.73 and 1.20 which expresses the consensus for respondent's responses.

- Table No. 10 shows the opinions of the sample members for the total axis on the contribution of the activity-based costing system to the customer profitability analysis:

Table 10 : « The results of the opinions of the sample members on the total contribution axis of the activity-based costing system in analyzing customer profitability »

Second axis	Statistical indicators			Relative importance
	Mean	**S-D**	**Sig T**	
	3.84	0.64	0.000	Great degree

Source: Prepared by researchers relying on the outputs of the SPSS program.

Through the table above, the arithmetic average of the total of this axis came as 3.84 which is classified in the large degree category. The standard deviation was 0.64 which reflects the consistency and consensus in the responses of the sample individuals. The probability value of the T-statistic for the total of this axis was less than 0.05. Consequently, there is a statistical significance to that great degree expressed. Thus, the results can be generalized to the Algerian telecom sector.

4. Results of the opinions of respondents on the challenges related to the application of customer profitability analysis:

In order to answer the problematic and explain challenges related to the application of customer profitability analysis in the Algerian telecom sector according to the study sample, two tables were prepared (Table No. 11 and Table No. 12):

- Table No. 11 shows the opinions of respondents according to various expressions about the degree of the challenges related to the application of customer profitability analysis:

Table 11 : « Results of respondent's opinions of various statements about the challenges related to applying customer profitability analysis »

Phrases of the third axis	Statistical indicators		Relative importance
	Mean	**S-D**	
1- Customer profitability analysis helps to identify profitable clients from non-profitable ones.	4.11	0.87	Great degree
2- Customer profitability analysis provides a clear picture of the services required of clients.	3.90	0.81	Great degree
3- Customer profitability analysis helps management make decisions to maximize customer value.	3.91	0.94	Great degree
4- Customer profitability analysis helps in accurate pricing of services.	4.04	1.06	Great degree
5- Customer profitability analysis contributes to enhancing customer loyalty.	3.74	1.04	Great degree

Source: Prepared by researchers, depending on the outputs of the SPSS program.

Through the above table, which includes an evaluation of the results of the sample opinions on the challenges related to implementing customer profitability analysis, and depending on the various paragraphs that were numbered05, it is noted that the averages ranged between 3.90 and 4.11 which was in the large category. Also, noting that its standard deviations were between 0.81 and 1.06, it indicates a convergence or consensus for the responses of the sample members.
- Table No. 12 shows the opinions of the sample members for the total axis on the challenges related to the application of customer profitability analysis:

Table 12 : « The results of the opinions of total axis of challenges related to the application of customer profitability analysis »

Third axis	Statistical indicators			Relative importance
	Mean	**S-D**	**Sig T**	
	3.93	0.71	0.000	Great degree

Source: Prepared by researchers relying on the outputs of the SPSS program.

The average value for the total of this axis came to 3.93 which is classified in the large class category. Also, the standard deviation came in at 0.71 which expresses the acceptable discrepancy of the total responses of the respondents. The probability values of the T-statistic for the total of this axis were less than 0.05, that is, there is a statistical significance for that degree. Thus, the results can be generalized to the Algerian telecom sector.

5. Results and Discussion:

In the following, the validity or otherwise of the proposed hypotheses is discussed and the results of the study are analyzed and discussed:

- The first question (how important is the analysis of customer profitability in the Algerian telecom sector according to the study sample at a significance level of 5%?) has been answered. The first hypothesis (the analysis of customer profitability in the Algerian telecom sector is of great importance according to the study sample at a significance level of 5%) is accepted. That has been based on the results of Tables No. (07 and 08) where most of the statements were in the category of materiality of great degree, and the overall score of the axis was

statistically significant which indicates acceptance of this hypothesis. Indeed, the analysis of customer profitability in the telecommunications sector The Algerian is very important because it helps distinguish profitable customers from others, and helps to make decisions that allow value to Clients, and determine the services required, in addition to the optimal pricing of the services provided.

- The second question (To what extent does the activity-based costing method contribute to the analysis of customer profitability in the Algerian telecom sector according to the study sample at a significance level of 5%?) was also answered. The second hypothesis (The activities-based cost system contributes significantly to the analysis of customer profitability in the Algerian telecom sector according to the study sample at a significance level of 5%) was accepted through the results of tables No. (09 and 10) as all statements are in the category of relative importance with a high degree, and the overall score of this axis is of statistical significant. This indicates acceptance of the hypothesis that the adoption of the ABC system provides more accurate information in analyzing customers' costs and revenues. It also helps to reduce the costs of services provided to customers and their management and helps in the optimal allocation of revenues and costs to customers. The ABC system allows fair pricing for the services provided to clients according to their different segments, and saves time and effort when analyzing customer profitability, unlike traditional systems in cost allocation.

- The third question (What are the challenges related to the application of customer profitability analysis in the Algerian telecom sector, according to the study sample at a significance level of 5%?) was also answered. The hypothesis (There are a number of challenges of significant impact related to the application of customer profit analysis in the Algerian telecom sector, according to the study sample, at a significance level of 5%) was accepted through the results of Table No. (11 and 12). All of their statements were in the category of relative importance with a high degree and the overall score statistically significant axis. This indicates acceptance of the hypothesis through the fact that the customer profitability analysis requires detailed information about the costs of the various activities, which results in consumption of time, effort and additional cost to follow up on the costs and revenues of each customer. Additionally the lack of good control in the analysis of customer profitability increases the risk of losses. Also, the diversity of customer behavior and needs leads to the difficulty of calculating the profitability and cost of each client. There is the difficulty of reducing some of the costs that relate to a class of customers without others as well.

Conclusion:

In light of the increasing interest in customer profitability, the interest of economic units shifted from the need to acquire profitable products to working on acquiring profitable customers, which could increase sales revenues for customers

and reduce their costs, through the use of modern methods to follow costing behavior in companies.

The focus of this study is on the analysis of customer profitability based on the activity-based costing method within the telecommunications sector in the Algerian scene. In light of what has been achieved in the theoretical and practical parts of this study, the most important conclusions reached can be summarized as follows:

- Customers can be divided into different groups according to their contribution to achieving profits and maximizing the value of the company. It should be noted that dealing with certain categories leads to bearing a loss.

- The need for economic units to conduct a process of analyzing the profitability of their customers, to identify the most profitable customers for the purpose of retaining them, and converting non-profitable customers into profitable customers by providing the best products with the best quality at the lowest costs, commensurate with the requirements of their desires.

- For the purpose of analyzing customer profitability, and making great use of the information that can be obtained from this analysis, organizations are required to circulate their accounting systems in a way that helps them to survey the information required for the purposes of this analysis with the aim of maintaining customer loyalty by providing what suits their desires according to the required quality at reasonable prices.

- Organizations that analyze customer profitability must have a clear policy for the purpose of granting all kinds of discount, as it constitutes an important factor in building good relationships with customers, and for the purpose of strengthening the relationship with profitable customers.

- It is necessary for institutions to develop their cost management system in order to keep abreast of developments and take advantage of the benefits of modern systems in the decision-making process.

- The customer profitability analysis process requires institutions to incur additional costs in relation to collecting information, analyzing and providing specialized staff for this process, and here the benefit achieved from the analysis process must be greater than the costs incurred by the company in order to conduct this analysis.

- It was found that there is a possibility of using the activity-based costing system in analyzing customer profitability in the Algerian telecom sector in light of the availability of data on the structure of revenues and costs for customers, and external information on competitors is required for the purpose of predicting future profitability.

- The process of analyzing customer profitability in the telecommunications sector within the Algerian environment faces a set of obstacles that prevent

this, but companies active in this field must work to overcome them as the benefit obtained exceeds the costs that must be borne in the long term.

As for the recommendations of the study, they were as follows:

− The need for companies operating in the telecommunications sector to pay attention to developing their accounting systems to provide the necessary data to analyze customer profitability, and to benefit from this in increasing the profitable customer base and improving the services provided to them in order to improve the strategic situation.

− The need to use the information provided by the customer profitability analysis as an input to the decisions related to customer service contracts.

− The necessity to carry out an analysis of the cost drivers of the factors affecting the customer profitability analysis in order to reach the most important of these causes.

− The necessity to use modern systems in cost management, including the activity-based costing method with the aim of using it in profitability analysis, and to reach a better identification of different customer segments which contributes to achieving a competitive advantage.

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