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Contribution of Modern Information and Communication Technology in Enhancing the Quality of Accounting Information: A Field Study

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Abstract
This study aimed to examine the reality of the use of modern information and communication technology in the institution in its dimensions (hardware, software, networks, human resources, information security), and its role in improving the quality of accounting information at Algeria Telecom in Chlef, and in order to understand the subject, the questionnaire and the statistical analysis program SPSS 22 were used. The study concluded that there is a strong correlation between the use of modern information and communication technology and the quality of accounting information in the institution under study, there is an impact of modern information and communication technology in its dimensions on improving the quality of accounting information at Algeria Telecom in Chlef.

The study recommends the need for the institution to benefit from information and communication technology in order to improve the quality of accounting information produced by accounting systems, through the introduction and adoption of advanced technology and techniques.

Keywords: Modern information and communication technology, hardware, software, networks, human resources, quality of accounting information.

الملخص:
هدفت هذه الدراسة إلى الوقوف على واقع استخدام تكنولوجيا الاعلام والاتصال الحديثة بالمؤسسة بأبعادها (الأجهزة، البرامج، الشبكات، الموارد البشرية، أمن المعلومات)، ودورها في تحسين جودة المعلمة المحاسبية بمؤسسة اتصالات الجزائر بالشلف، وبهدف الالمام بالموضوع تم الاعتماد على الاستبيان وبرنامج التحليل الإحصائي SPSS 22 . وتوصلت الدراسة إلى وجود علاقة ارتباط قوية بين استخدام تكنولوجيا الاعلام والاتصال الحديثة وجودة المعلومة المحاسبية بالمؤسسة محل الدراسة، يوجد أثر لتكنولوجيا الاعلام والاتصال الحديثة أبعادها في تحسين جودة المعلومة المحاسبية بمؤسسة اتصالات الجزائر بالشلف.
وتوصي الدراسة بضرورة أن تستفيد المؤسسة من تكنولوجيا الاعلام والاتصال وهذا بهدف تحسين جودة المعلومة المحاسبية التي تنتجها الأنظمة المحاسبية، ويكون من خلال إدخال وتبني تكنولوجيا وتقنيات متطورة.
الكلمات المفتاحية: تكنولوجيا الاعلام والاتصال الحديثة، الأجهزة، البرامج، الشبكات، الموارد البشرية، جودة المعلومة المحاسبية.

1. Introduction:
Information and communication technology plays a pivotal role in improving the management and administration of institutions and enhancing their competitiveness, as continuous innovation and renewal are requirements of institutional excellence, through developing the capacities of employees, keeping pace with technological developments, and supporting problem-solving and decision-making at the appropriate time. This technology has also contributed to the emergence of the knowledge economy, where the value of nations is measured by the information they produce.

Information is a fundamental element in decision-making and facing changes, which prompted institutions to develop their systems, especially the accounting information system, by employing modern information and communication technology to improve its efficiency and the quality of its outputs, and to provide accurate and appropriate accounting information for its users.

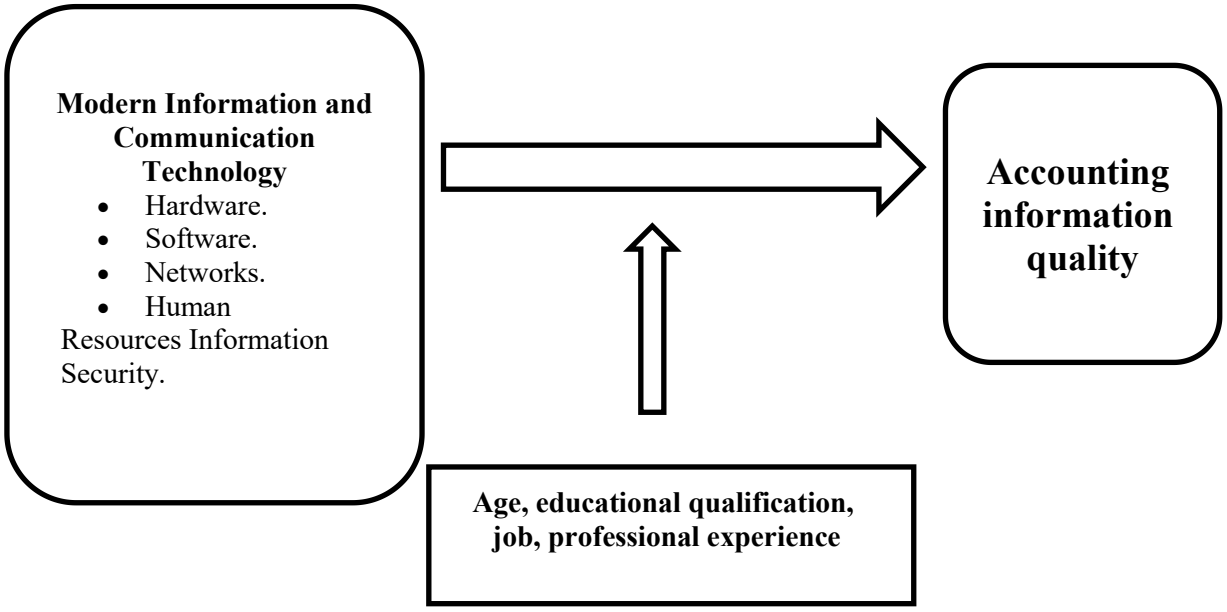
In an environment characterized by uncertainty and risk, the importance of accounting information emerges in reducing the degree of uncertainty, as financial reports constitute a main source for supporting sound decisions. Considering that Algerian institutions, including Algeria Telecom, are not isolated from these developments, and given the importance of the institution and the nature of its changing environment, this study aims to analyze the reality of applying modern information and communication technology and its role in improving the quality of accounting information, which positively reflects on the institution's performance, by answering the following problem:

To what extent does modern information and communication technology contribute to improving the quality of accounting information in the public sector at Algeria Telecom?

2. Study Model:

A model was built on the problem of our study, which was designed based on previous studies on the subject:

Figure No. 01: Study Model



Source: Prepared by the researchers.

3. Study Hypotheses: In order for us to interpret the problem, the following hypotheses were formulated:

First Main Hypothesis: There is a statistically significant effect at the significance level ($0.05 \geq \alpha$) of modern information and communication technology on improving the quality of accounting information at Algeria Telecom in Chlef Province, and it branches into the following hypotheses:

First Sub-Hypothesis: There is a statistically significant effect at the significance level

(0.05≥ α) of hardware on improving the quality of accounting information in the institution under study.
Second Sub-Hypothesis: There is a statistically significant effect at the significance level (0.05≥ α) of software on improving the quality of accounting information in the institution under study.
Third Sub-Hypothesis: There is a statistically significant effect at the significance level (0.05≥ α) of networks on improving the quality of accounting information in the institution under study.
Fourth Sub-Hypothesis: There is a statistically significant effect at the significance level (0.05≥ α) of human resources on improving the quality of accounting information in the institution under study.
Fourth Sub-Hypothesis: There is a statistically significant effect at the significance level (0.05≥ α) of information security on improving the quality of accounting information in the institution under study.
Second Main Hypothesis: There are statistically significant differences at the significance level (0.05≥α) for modern information and communication technology and the quality of accounting information attributed to variables (age, educational qualification, job grade, professional experience) in the institution under study.

4. Study Importance: The importance of our study is represented in the following points:
· Contributing to covering an aspect of studies related to both modern information and communication technology and the quality of accounting information in public institutions.
· Developing awareness among those in charge of public institutions about the role of modern information and communication technology in institutions.
· Highlighting the importance of the quality of accounting information?
· The role of using modern information and communication technology on the quality of accounting information in public institutions.

I- Theoretical Aspect:

1. Definition of Information and Communication Technology: Its reference world is considered to be the world of data and information that can be accessed automatically, the traditional organization based on the Taylorist principle has transformed into a network enterprise entreprise-réseau, and its written documents have transformed into digital processes and led to the creation of paperless offices by adopting the method of working via the network. [1]

It is all that results from the integration of computer technology, wired and wireless technology, microelectronics, and multimedia in new forms of technology with superior capabilities for producing, collecting, storing, processing, publishing, and retrieving information in an unprecedented manner that relies on a set of mass and personal interactive communication conferences together. [2]

The Organization for Economic Cooperation and Development defined it as "the information and communication technology sector includes the manufacturing and services sectors that

[1] Hanaa Abdaoui, Contribution to Determining the Role of Information and Communication Technology in Giving the Institution a Competitive Advantage - Case Study of the Algerian Mobile Phone Company Mobilis -, Third Phase Doctoral Thesis, Faculty of Economic, Commercial, and Management Sciences, Mohammed Khaider University, Biskra, Algeria, 2016, p. 77.
[2] Ben Khoula Sadiqa, Meghraoui Naima, Information and Communication Technology in the Public Hospital Institution - Field Study at Che Guevara Hospital Mostaganem, Master's Thesis, Faculty of Social Sciences, Abdelhamid Ben Badis University, Mostaganem, 2017, p. 8.

facilitate the transfer, storage, and processing of information by electronic means." [3]
The term information and communication technology includes through this definition three elements: telecommunications, informatics, and microelectronics, these elements constitute the set of systems, software, and various computer equipment used in managing information from digital processing of information, storing, sending, and investing it. [4]
New information and communication technology is the tools that participate in producing, converting, or exchanging information thanks to electronic components, and can be equipment such as computers, mobile phones, or communication networks or software that complements devices and allows achieving a very large number of tasks. [5]
Information and communication technology includes two main branches: [6]
First: Processing information, this branch includes functions that deal with the automatic processing and distribution of information, which are the basis for accomplishing operating processes in organizations. It supports management's ability to make decisions, and the central axis of this branch is represented in automated information applications in their various forms.
Second: Transmission and delivery of information, this branch consists of the process of transferring and delivering processed information between distant computer locations and between computers and their distant peripheral units using remote communication facilities.
More precisely, it can be said that information and communication technology through its analysis into its elements represented in computers of all kinds, hardware, software, and communication networks used.

2.**Use of Information Technology in the Finance and Economy Sector:** Its uses can be clarified through the following table:
Table No. (01): Use of information technology in the finance and economy sector and its objectives.

Information Technology Applications	**Objectives**
Assisting banking operations	Improving service, speed of account reconciliation, supporting financial oversight of banks
Electronic funds transfer	Speed of service, reducing paperwork for operations between banks
Establishing economic models	Analyzing economic systems and evaluating strategies

[3] MESSAOUDI Sofiane, TAGHERIBET yasmine, Impact des Technologies de l'Information et de la Communication (TIC) Sur la performance des entreprises : Cas d'un échantillon des entreprises de la wilaya de Bejaia, mémoire de de Master en sciences de gestion, Faculté Des Sciences Economiques, Commerciales Et Des Sciences De gestion, Université Abderrahmane Mira De BEJAIA, 2017, p 06.
[4] Mohiebel Wissam, Information and Communication Technology and Its Role in Activating the Human Resources Management Function - Case Study of Human Resources Directorate at the Ministry of Finance -, Master's Thesis in Management Sciences, Faculty of Economic, Commercial, and Management Sciences, University of Algiers -3-, Algeria, 2012, p. 78.
[5] Vancrayelynghe, Charlotte, Quels impacts ont les technologies de l'information et de la communication dans l'activité des cadres et qu'en est-il de leur perception par rapport à la déconnexion?, Mémoire de Master en Gestion, Faculté des Sciences Sociales & HEC, université LIEGE, 2018, http://hdl.handle.net/2268.2/4608, p 06.
[6] Farouk Hrizi, The Role of Modern Communication Technologies in Achieving the Objectives of Sustainable Human Development Strategy in Algeria - Case Study of Algeria Telecom -, Master's Thesis, Faculty of Economic, Commercial, and Management Sciences, Ferhat Abbas University, Setif, Algeria, 2011, p. 14.

Investment management	Maximizing investment return and analyzing risks
Information systems, stock markets	Immediate broadcasting of information to dealers, extracting time series statistics for changes in stock and bond prices and other economic indicators
Computer-aided design	Speed of modification, multiple design experiments, and saving effort after design through the automated system determining the lists, components, and resources involved

Source: Ahmed Hriz Abdelkader, Ahmed Bouta, Amara Massi Mohammed, Abdel Hamid Twil, The Impact of Risks of Using Information Technology on Audit Quality - Field Study -, Master's Thesis in Financial and Accounting Sciences, Faculty of Economic, Commercial, and Management Sciences, Martyr Hamma Lakhdar University, El Oued, 2019, p. 22.

3.**Use of Technology in the Accounting Field:** It can be used in many accounting areas, the most important of which are:

· Implementing some accounting procedures such as: recording economic events in journal books, transferring to accounts in the general ledger and organizing trial balances, preparing financial statements and periodic reports such as the balance sheet and income statement.

· Storing and analyzing data to help in decision-making, the most important of which are: analyzing cost deviations, analyzing financial statements. [7]

· Financial documents**:** Defining document forms (disbursement, receipt, settlement, warehouse entry and exit) that are used for financial transactions and recording them on the basis of allocating one or more pages in the computer for each type, which leads to a reduction in the document cycle.

· Books and records: They are inside the computer in the form of files and means of storing data and information.

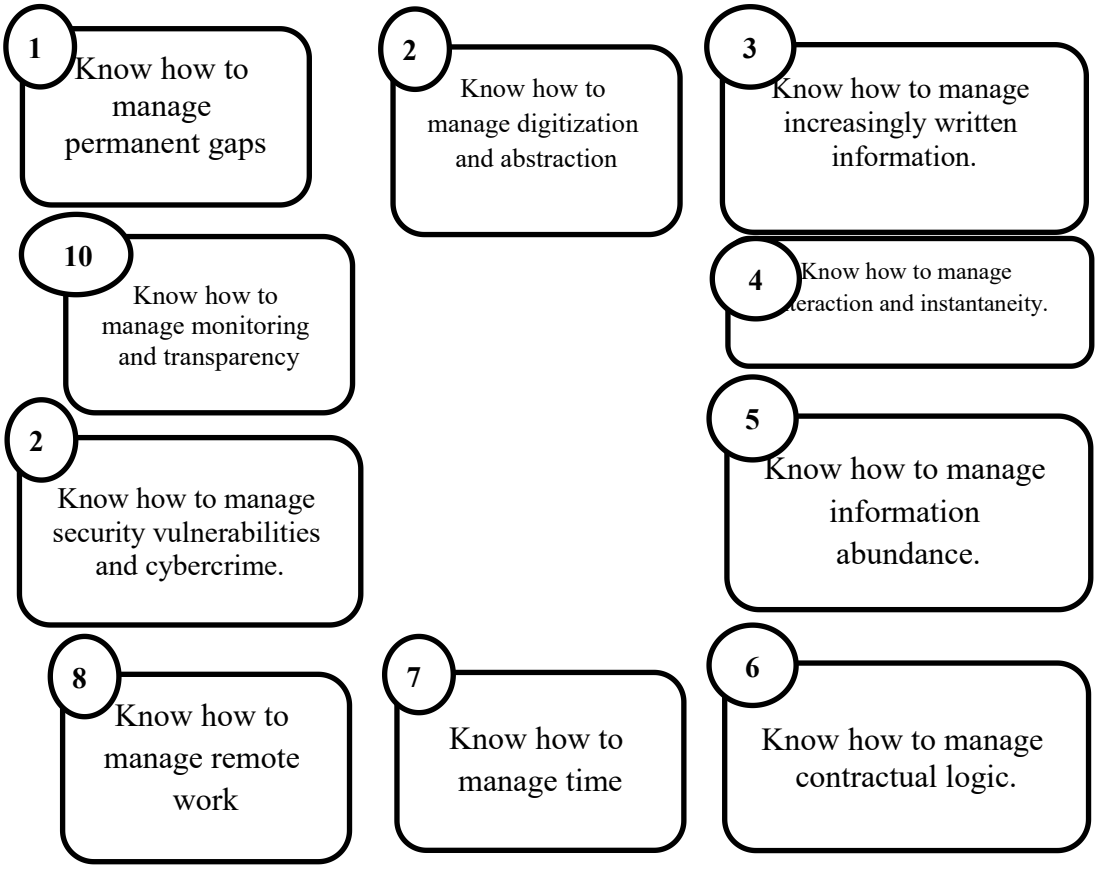
· Computer outputs**:** They are used as reports as the method of presenting results and information using the computer differs from the manual system.

· Reports**:** Most computer outputs are in the form of lists, reports, and analyses of financial indicators, which can be used in making administrative decisions.

· Recording in journal books**:** Recording in journal books and transferring to accounts in the general ledger is done in one operation, which saves time and reduces the chance of error, in addition to shortening some stages in the accounting operations cycle. [8]

Figure No. (02): Main impacts of information and communication technology on work content

[7] Fouad Abdel Mohsen Al-Jubouri, The Role of Information Technology in Improving Accounting Information Quality and Its Implications for Economic Development in Iraq, p. 101.
[8] Fouad Abdel Mohsen Al-Jubouri, Same reference, p. 101.



Source: Vancrayelynghe, Charlotte, Quels impacts ont les technologies de l'information et de la communication dans l'activité des cadres et qu'en est-il de leur perception par rapport à la déconnexion?, Mémoire de Master en Gestion, Faculté des Sciences Sociales & HEC, université LIEGE, 2018, http://hdl.handle.net/2268.2/4608, p 10.

4- Concept of Accounting Information Quality in the Public Sector

A set of qualitative characteristics that must be available in accounting information so that it is useful and beneficial in the process of making and rationalizing decisions. [9]

The concept of information quality means those qualitative characteristics that useful accounting information must have, i.e., the availability of these characteristics in this information makes it of great benefit to the various parties benefiting from it. [10]

The quality of accounting information is affected by: [11]

· Users of accounting information (decision makers): That is, the benefit of accounting information depends on who makes the decision, the type of decision, the method of decision-making, and the decision-maker's method of consciously analyzing this information and

[9] Faisal Gad El-Rab Abdelhalim El-Mahdi, Mustafa Negm El-Bashary, The Impact of Applying the First International Reporting Standard IFRS1 on Accounting Information Quality - Field Study -, Journal of Graduate Studies, Al-Neelain University, Volume: 10, Issue 38-1, Special Issue of the Ninth Graduate Studies Conference, 2018, p. 371.

[10] Hamdi Ali, The Impact of Accounting Information Quality on Decision Making in Algerian Economic Institutions - Case Study of Aures Mills Company Batna, Commercial Production Unit "Ares" -, Master's Thesis in Management Sciences, Faculty of Economic, Commercial, and Management Sciences, Mohammed Khaider University, Biskra, Algeria, 2011, p. 98.

[11] Adnan Mohammed Mohammed Qaoud, Study and Evaluation of Electronic Accounting Information System in Palestinian Companies - Applied Study on Joint-Stock Companies in Gaza Governorates -, Master's Thesis in Accounting and Finance, Faculty of Commerce, Islamic University, Gaza, 2007, pp. 65-66.

benefiting from it.

· Basic characteristics of accounting information: These are the qualitative characteristics; understandability, relevance, materiality (relative importance), reliability, faithful representation, substance over form, neutrality, prudence and caution, completeness, comparability.

5. Standards for Accounting Information Quality in the Public Sector

The following table shows the most important qualitative characteristics of accounting information as stated in professional organizations around the world. [12]

Table No. (02): Qualitative characteristics of accounting information according to international organizations

Characteristic	AAA 1966	AICPA		ICAWE Corporate Report	FASB SFAC N02 1980	IASC 1989
		APB N04 1970	Trueblood 1973			
Relevance	x	x	x	x	x	x
Verifiability	x	x			x	x
Clarity		x	x	x		
Unbiasedness	x	x	x		x	x
Objectivity				x	x	x
Timeliness		x		x	x	x
Consistency			x		x	x
Completeness		x		x		x
Reasonableness			x			
Comparability		x	x	x	x	x
Relative importance			x			x
Substance over form			x	x		x
Predictive value					x	
Feedback value					x	
Faithful representation (reliability)	x			x	x	x

Source: Naji Ben Yahya, The Role of Accounting Information Quality in Improving Accounting Disclosure - Case Study of GM SUD Mills Company in Biskra -, Master's Thesis in Management Sciences, Faculty of Economic, Commercial, and Management Sciences, Mohammed Khaider University, Biskra, Algeria, 2013, p. 44.

Most studies confirmed relevance, objectivity, timeliness, unbiasedness, comparability of information, and understandability as the most important characteristics that must be available in information.

Accounting information is characterized by quality through the characteristics it possesses that help in evaluating information, and therefore it can be said that the characteristics

[12] Naji Ben Yahya, The Role of Accounting Information Quality in Improving Accounting Disclosure - Case Study of GM SUD Mills Company in Biskra -, Master's Thesis in Management Sciences, Faculty of Economic, Commercial, and Management Sciences, Mohammed Khaider University, Biskra, Algeria, 2013, p. 44.

approved by the Financial Accounting Standards Board FASB, which were stated in Statement No. 02 in 1980 under "Qualitative Characteristics of Accounting Information," is the most comprehensive study on the basis of which the most important characteristics required to achieve accounting information quality can be represented.

6. Importance of using electronic accounting information system in the public sector

We mention the most important as follows [13] :

· Flexibility in designing accounting information systems through storing or retrieving information at the appropriate time.

· Reducing the cost of accounting operations carried out by the institution and increasing the accuracy and speed of these operations.

· Improving the process of preserving these accounting books and documents and facilitating their collection, storage, and retrieval operations in the form of information for institution management.

· Improving control and decision-making processes by increasing the efficiency of administrative control systems, presenting information and reports at the appropriate time, and quickly communicating feedback information resulting from implementing decisions.

· Accuracy in extracting information and final results, because the computer contains control and verification means and methods, management can verify the validity of operations.

· Speed of completing similar operations at one time, recording a large number of accounting operations, and using fewer individuals in a short time.

II- Field Study:

1. General presentation of Algeria Telecom

Algeria Telecom is a leading institution in the wired and wireless telecommunications market in Algeria, which is witnessing remarkable development in this field. Algeria Telecom is a joint-stock company with public capital, operating in the field of wired and wireless telecommunications, landline, and internet. It was established according to Law 2000/03 dated August 5, 2000, related to the restructuring of the postal and wired and wireless telecommunications sector, which consecrated the separation between postal activities and wired and wireless telecommunications, and defined the general rules for post and telecommunications, in addition to the decisions of the National Council for State Contributions (CNPE) on March 1, 2001, which stipulated the creation of a public economic institution called "Algeria Telecom".

According to this law, which defined the system of a public economic institution under the legal form "joint-stock company" with a social capital of 115,000,000,000.00 DA and registered in the National Trade Register Center on May 11, 2002 under number 02B 0018083 Algeria Telecom has sought since 2010 to restructure its organizational structure so that the operational unit was given the responsibilities and tasks of the Regional Directorate of Communications in Algeria in pursuit of decentralization of decision-making, this from the administrative side. As for the technical side, it has gone through major steps in developing the technology used, moving from the voice system to the optical system using the next new generation.

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[13] Dridi Najib, Djarouni Rizk Allah, Zine Ismail, Reality and Prospects of Electronic Accounting Information System in Algeria - Case Study of Algerian Popular Credit El Oued Agency -, Master's Thesis, Faculty of Economic, Commercial, and Management Sciences, Martyr Hamma Lakhdar University, El Oued, Algeria, 2019, pp. 24-25.

2- Institution Objectives: The institution aims to
· Develop and promote Algeria Telecom activities, especially regarding its services that suffer from foreign competition.
· Achieve maximum possible profits.
· Reduce costs and control them.
· Attempt to keep pace with economic developments and transformations and control technology.
· Increase the number of customers by providing information in modern ways, by relying on computer information means, as well as improving the appearance of the unified reception hall in its form at the level of all commercial agencies located in Algerian territory.
· Communicate with companies and institutions operating inside and outside the province, and work to provide better services to them.
· Provide necessary information (new subscribers, turnover...etc.) to the operational directorate, which in turn sends it to the general directorate through the GAIA network.
· Market additional services such as internet, WLL through the advertising campaign available inside the reception hall (a huge television dedicated to advertisements, catalogs and advertising posters...etc.).
This is in order to attract customers' attention to these new services.

3- **Methodology Used in the Study:** Given the nature of the study that aims to identify the role of modern information and communication technology in improving the quality of accounting information in the public sector at Algeria Telecom in Chlef, the descriptive analytical approach was used, which expresses the phenomenon to be studied quantitatively and qualitatively, with the aim of collecting and analyzing data, testing study hypotheses, revealing the relationship between its different dimensions in order to interpret it and reach conclusions that contribute to improving reality.

4- **Study Population and Sample:** To achieve the study objectives, we determined the target population, represented in the human resources working at Algeria Telecom in Chlef, and the convenience sample was used, which helps collect information from sample members, which amounted to 36 questionnaires.

5-. Reliability of Study Tool: We used the reliability coefficient and normal distribution test, which were as follows:
Table No. (01): Shows the results of choosing the validity and reliability of the scale and the consistency coefficient for the axis of information and communication technology.

Axis	Dimension	Number of statements	Reliability coefficient	Consistency coefficient
Modern information and communication technology	Hardware	05	0.777	0.874
	Software	04	0.829	0.906
	Networks	04	0.846	0.916
	Human resources	04	0.822	0.902
	Information security	03	0.812	0.896
	All dimensions	20	0.932	0.964
Accounting information quality	09	0.822	0.902	Accounting information quality

Source: Prepared by the researchers based on SPSS 22 outputs.
As for the Cronbach's alpha value for all study axes, it is shown in the following table:

Table No. (02): Shows the results of choosing the validity and reliability of the scale and the consistency coefficient for all study axes

Number of statements	Reliability coefficient	Consistency coefficient
29	0.912	0.953

Source: Prepared by the researchers based on SPSS 22 outputs.

It is noted from the previous table that Cronbach's alpha reliability coefficient is estimated at 0.912, which is a high degree of reliability, in addition to the internal consistency coefficient of the measurement tool estimated at 0.953, which is a high degree, and therefore the questionnaire is suitable for statistical processing.

5- **Kolmogorov test (1- sample K-S):** To know whether the data follows normal distribution or not, where to test hypotheses, interpret and discuss results, the normal distribution test ("Kolmogorov-Smirnov" test kolmogorov-Smimov) was used to verify the extent to which data follows normal distribution.

Table No. 03): Normal distribution test results

Axis	Axis Title	z value	Significance level
First	Modern information and communication technology.	0.369	0.120
Second	Accounting information quality.	0.753	0.453

Source: Prepared by the researchers based on SPSS 22 program.

According to the table, the significance level values for each axis of the study axes were greater than the significance level of the current study, which is (0.05), and this indicates that the data follows normal distribution and therefore parametric tests must be used in testing study hypotheses.

7- Statistical analysis of modern information and communication technology data: We will try to analyze and present the results of each dimension of modern information and communication technology separately.

Table No. (04): Trends of study sample members regarding modern information and communication technology - Hardware -

Statement No.	Statement	Arithmetic mean	Standard deviation	Chi-square value	Chi-square probability	Adoption degree	Rank
01	The institution has a sufficient number of computer devices to perform accounting work in the best way.	4.47	0.50	0.111	0.00	Very high	1
02	The institution has modern and developed high-quality devices.	4.38	0.49	1.778	0.00	Very high	2
03	The devices provide sufficient space for storing information.	4.27	0.45	7.111	0.00	Very high	3
04	Devices and computers in the institution are maintained and updated continuously.	4.22	0.42	11.11	0.00	High	4
05	The institution has	4.13	0.48	29.16	0.00	High	5

	devices and equipment that enable it to be a leader in its work.						
Weighted arithmetic mean:	**4.29**	/	/	/	**Very high**	/	

Source: Prepared by the researchers based on SPSS 22 program.

The above table indicates the responses of study sample members regarding statements related to the hardware dimension of the modern information and communication technology axis, and accordingly we note that the hardware level is very high, where the total arithmetic mean for this dimension reached (4.29) out of 5, which is an average that falls within the fifth category of the five-point Likert scale categories (4.21 - 5.00), which is the category that indicates the option "strongly agree" corresponding to the "very high" level.

It is noted that the chi-square test is statistically significant for all dimension statements and therefore the alternative hypothesis is accepted, which states that there is no difference between the sample's opinions and the population's opinions.

Table No. (05): Trends of study sample members regarding modern information and communication technology - Software -

Statement No.	Statement	Arithmetic mean	Standard deviation	Chi-square value	Chi-square probability	Adoption degree	Rank
06	The software available in the institution provides fast and accurate data processing.	4.25	0.439	9.00	0.00	Very high	3
07	The software used in the institution is advanced and helps improve accounting work performance.	4.22	0.421	5.444	0.00	Very high	4
08	The software used contributes to reducing service costs.	4.27	0.454	11.11	0.00	Very high	1
09	The software has security and protection from viruses and intrusions.	4.25	0.428	7.111	0.00	Very high	2
Weighted arithmetic mean:	**4.24**	/	/	/	**Very high**	/	

Source: Prepared by the researchers based on SPSS 22 program.

The above table shows the responses of study sample members regarding statements related to the software dimension of the modern information and communication technology axis, and accordingly we note that software is at a very high level, where the total arithmetic mean for this dimension reached 4.24 out of 5, which is an average that falls within the fifth category of the five-point Likert scale categories (4.21 - 5.00), which is the category that indicates the

option "strongly agree" corresponding to the "very high" level.
It is noted that the chi-square test is statistically significant for all dimension statements and therefore the alternative hypothesis is accepted, which states that there is no difference between the sample's opinions and the population's opinions.

Table No. (06): Trends of study sample members regarding modern information and communication technology - Networks -

Statement No.	Statement	Arithmetic mean	Standard deviation	Chi-square value	Chi-square probability	Adoption degree	Rank
10	Information and data exchange is done easily between departments in the institution through available communication means.	4.30	0.467	9.444	0.00	Very high	2
11	The institution uses the internet network.	4.22	0.421	11.11	0.00	Very high	3
12	The institution is connected to departments and departments through an internal network that facilitates communication between them.	4.38	0.494	17.78	0.00	Very high	1
13	The institution's management is distinguished by its ability to implement its programs and plans through its computerized information technology management.	4.16	0.377	16.0	0.00	High	4
Weighted arithmetic mean:	**4.26**	/	/	/	**Very high**	/	

Source: Prepared by the researchers based on SPSS 22 program.
The above table indicates the responses of study sample members regarding statements related to the networks dimension of the modern information and communication technology axis, and accordingly we note that the level of networks in modern information and communication technology is very high, where the total arithmetic mean for this dimension reached (4.26) out of 5, which is an average that falls within the fifth category of the five-point Likert scale categories (4.21 - 5.00), which is the category that indicates the option "strongly agree" corresponding to the "very high" level.
It is noted that the chi-square test is statistically significant for all dimension statements and therefore the alternative hypothesis is accepted, which states that there is no difference between the sample's opinions and the population's opinions.

Table No. (07): Trends of study sample members regarding modern information and communication technology - Human Resources -

Statement No.	Statement	Arithmetic mean	Standard deviation	Chi-square	Chi-square probability	Adoption degree	Rank

				value			
14	The institution prepares training courses that have an impact on improving the use of all information systems.	4.30	0.467	50.44	0.00	Very high	1
15	Individuals in the institution have computer and software skills.	4.13	0.424	37.16	0.00	High	2
16	The informatics department in the institution trains employees on modern techniques in the field of accounting information technology.	4.11	0.318	21.77	0.00	High	3
17	The institution has programmers and experts who can develop and adapt software according to what the institution needs.	4.00	0.338	50.00	0.00	High	4
Weighted arithmetic mean:	**4.13**	/	/	/	**High**	/	

Source: Prepared by the researchers based on SPSS 22 program.

The above table indicates the responses of study sample members regarding statements related to the human resources dimension of the modern information and communication technology axis, and accordingly we note that the level of human resources in modern information and communication technology is high, where the total arithmetic mean for this dimension reached (4.13) out of 5, which is an average that falls within the fourth category of the five-point Likert scale categories (3.41 - 4.20), which is the category that indicates the option "agree" corresponding to the "high" level.

It is noted that the chi-square test is statistically significant for all dimension statements and therefore the alternative hypothesis is accepted, which states that there is no difference between the sample's opinions and the population's opinions.

Table No. (08): Trends of study sample members regarding modern information and communication technology - Information Security -

Statement No.	Statement	Arithmetic mean	Standard deviation	Chi-square value	Chi-square probability	Adoption degree	Rank
18	The institution is keen to provide network security for the purpose of protecting information and data and maintaining its confidentiality.	4.25	0.439	11.09	0.00	Very high	1

19	Specialists examine software and information systems used continuously.	4.13	0.350	18.77	0.00	High	3
20	Devices and software help senior management monitor the institution's activities.	4.19	0.401	13.44	0.00	High	2
Weighted arithmetic mean:	**4.19**	/	/	/	**High**	/	

Source: Prepared by the researchers based on SPSS 22 program.

The above table shows the responses of study sample members regarding statements related to the information security dimension of the modern information and communication technology axis, and accordingly we note that the level of information security is high, where the total arithmetic mean for this dimension reached (4.19) out of 5, which is an average that falls within the fourth category of the five-point Likert scale categories (3.41 - 4.20), which is the category that indicates the option "agree" corresponding to the "high" level.

It is noted that the chi-square test is statistically significant for all dimension statements and therefore the alternative hypothesis is accepted, which states that there is no difference between the sample's opinions and the population's opinions.

8- Statistical analysis of accounting information quality data: We will try to analyze and present the results of the level of accounting information quality.

Table No. (09): Trends of study sample members regarding accounting information quality.

Statement No.	Statement	Arithmetic mean	Standard deviation	Chi-square value	Chi-square probability	Adoption degree	Rank
01	The accounting information provided by reports is characterized by accuracy and credibility.	4.16	0.377	16.00	0.00	High	1
02	The accounting information provided by accounting reports has the ability to predict future results.	4.08	0.439	36.50	0.00	High	6
03	Accounting information is prepared, presented, and provided to its users at the appropriate time.	4.11	0.318	21.77	0.00	High	4
04	The external auditor's report plays an important role in increasing confidence in accounting information in reports.	4.13	0.350	18.77	0.00	High	2
05	The accounting information provided is free of fictitious or	4.08	0.368	45.50	0.00	High	5

	incorrect data.						
06	The principle of consistency is adhered to when preparing accounting reports that are issued.	3.97	0.291	55.16	0.00	High	9
07	The accounting information presented in reports is characterized by neutrality and distance from bias.	4.05	0.323	50.16	0.00	High	7
08	The reports issued by the institution include accounting information comparable whether with previous period results or with similar institutions.	4.05	0.333	50.16	0.00	High	8
09	The accounting information extracted from devices and software is characterized by the possibility of benefiting from it in comparing results of different years.	4.11	0.309	21.77	0.00	High	3
Weighted arithmetic mean:	**3.62**	/	/	/	**High**	/	

Source: Prepared by the researchers based on SPSS 22 program.

The above table indicates the responses of study sample members regarding statements related to the accounting information quality axis, and accordingly we note that sample members have a high level of accounting information quality, where the total arithmetic mean for this dimension reached (3.62) out of 5, which falls within the fourth category of the five-point Likert scale categories (3.41 - 4.20), which is the category that indicates the option "agree" corresponding to the "high" level.

It is noted that the chi-square test is statistically significant for all dimension statements and therefore the alternative hypothesis is accepted, which states that there is no difference between the sample's opinions and the population's opinions.

9-. Testing Study Hypotheses: To test study hypotheses, a set of statistical tools was used (at significance level 0.05) and the following tables show the results obtained when testing study hypotheses.

9-1- First Main Hypothesis H1: There is a statistically significant effect at the level ($0.05 \geq \alpha$) of modern information and communication technology on improving accounting information quality in the institution under study. To test this hypothesis, it was divided into four sub-hypotheses, where each one will be tested separately through estimating a regression model of the effect of modern information and communication technology in its five dimensions on accounting information quality, which will be as follows:

a- First Sub-Hypothesis H11: There is a statistically significant effect at the level ($0.05 \geq \alpha$)

of hardware on improving accounting information quality in the institution under study.

Table No. (01): Regression analysis to test the first sub-hypothesis.

Independent variable	Dependent variable	Regression coefficient β	Constant a	Correlation coefficient R	Determination coefficient R²	F value	Significance level sig	t value	Significance level sig
Hardware	Accounting information quality	0.54	0.76	0.68	0.46	67.40	0.000	8.21	0.000

Source: Prepared by the researchers based on SPSS 22 program.

Accordingly, we note from the table that the value of the correlation coefficient R, which measures the strength of the relationship between the hardware dimension and accounting information quality, is 68%, i.e., a strong and direct correlation degree, and the value of the determination coefficient R² is 0.46, i.e., hardware is responsible for 46% of the changes occurring in accounting information quality. We also note that the regression coefficient was estimated at 0.54 with a significance level of (0.00), and this means there is a statistically significant effect between hardware and accounting information quality, where increasing the use of hardware by one unit leads to an increase in accounting information quality by 54% of this unit, and accordingly the first sub-hypothesis is accepted, which states that there is a significant statistically significant effect of hardware on accounting information quality in the institution under study at the significance level (0.05≥α).

b- Second Sub-Hypothesis H12: There is a statistically significant effect at the level (0.05≥ α) of software on improving accounting information quality in the institution under study.

Table No. (11): Regression analysis to test the second sub-hypothesis.

Independent variable	Dependent variable	Regression coefficient β	Constant a	Correlation coefficient R	Determination coefficient R²	F value	Significance level sig	t value	Significance level sig
Software	**Accounting information quality**	**0.55**	**1**	**0.51**	**0.26**	**28.32**	**0.000**	**5.32**	**0.000**

Source: Prepared by the researchers based on SPSS 22 program.

Accordingly, we note from the table that the value of the correlation coefficient R, which measures the strength of the relationship between the software dimension and accounting information quality, is 51%, i.e., a moderate and direct correlation degree, and the value of the determination coefficient R² is 0.26, i.e., software is responsible for 26% of the changes occurring in accounting information quality. We also note that the regression coefficient was

estimated at 0.55 with a significance level of (0.00), and this means there is a statistically significant effect between software and accounting information quality, where increasing the use of software by one unit leads to an increase in accounting information quality by 55% of this unit, and accordingly the second sub-hypothesis is accepted, which states that there is a significant statistically significant effect of software on accounting information quality in the institution under study at the significance level (0.05≥α).

c- Third Sub-Hypothesis H13: There is a statistically significant effect at the level (0.05≥ α) of networks on improving accounting information quality in the institution under study.

Table No. (12): Regression analysis to test the third sub-hypothesis.

Independent variable	Dependent variable	Regression coefficient β	Constant a	Correlation coefficient R	Determination coefficient R²	F value	Significance level sig	t value	Significance level sig
Networks	Accounting information quality	0.56	0.64	0.53	0.28	30.37	0.000	5.54	0.000

Source: Prepared by the researchers based on SPSS 22 program.

Accordingly, we note from the table that the value of the correlation coefficient R, which measures the strength of the relationship between the networks dimension and accounting information quality, is 53%, i.e., a moderate and direct correlation degree, and the value of the determination coefficient R² is 0.28, i.e., networks are responsible for 28% of the changes occurring in accounting information quality. We also note that the regression coefficient was estimated at 0.56 with a significance level of (0.00), and this means there is a statistically significant effect between networks and accounting information quality, where increasing the use of networks by one unit leads to an increase in accounting information quality by 56% of this unit, and accordingly the third sub-hypothesis is accepted, which states that there is a significant statistically significant effect of networks on accounting information quality in the institution under study at the significance level (0.05≥α).

d- Fourth Sub-Hypothesis H14: There is a statistically significant effect at the level (0.05≥ α) of human resources on improving accounting information quality in the institution under study.

Table No. (13): Regression analysis to test the fourth sub-hypothesis.

Independent variable	Dependent variable	Regression coefficient β	Constant a	Correlation coefficient R	Determination coefficient R²	F value	Significance level sig	t value	Significance level sig
Human resources	Accounting inform	0.73	0.47	0.63	0.40	53.66	0.000	7.32	0.000

Independent variable	Dependent variable	Regression coefficient β	Constant a	Correlation coefficient R	Determination coefficient R²	F value	Significance level sig	t value	Significance level sig
	ation quality								

Source: Prepared by the researchers based on SPSS 22 program.

Accordingly, we note from the table that the value of the correlation coefficient R, which measures the strength of the relationship between the human resources dimension and accounting information quality, is 63%, i.e., a strong and direct correlation degree, and the value of the determination coefficient R^2 is 0.40, i.e., human resources are responsible for 40% of the changes occurring in accounting information quality. We also note that the regression coefficient was estimated at 0.73 with a significance level of (0.00), and this means there is a statistically significant effect between human resources and accounting information quality, where increasing the use of human resources by one unit leads to an increase in accounting information quality by 73% of this unit, and accordingly the fourth sub-hypothesis is accepted, which states that there is a significant statistically significant effect of human resources on accounting information quality in the institution under study at the significance level ($0.05 \geq \alpha$).

e- Fifth Sub-Hypothesis H15: There is a statistically significant effect at the level ($0.05 \geq \alpha$) of information security on improving accounting information quality in the institution under study.

Table No. (14): Regression analysis to test the fifth sub-hypothesis.

Independent variable	Dependent variable	Regression coefficient β	Constant a	Correlation coefficient R	Determination coefficient R²	F value	Significance level sig	t value	Significance level sig
Information security	**Accounting information quality**	**0.39**	**0.64**	**0.499**	**0.25**	**11.29**	**0.000**	**3.36**	**0.000**

Source: Prepared by the researchers based on SPSS 22 program.

Accordingly, we note from the table that the value of the correlation coefficient R, which measures the strength of the relationship between the information security dimension and accounting information quality, is 49.9%, i.e., a moderate and direct correlation degree, and the value of the determination coefficient R^2 is 0.25, i.e., information security is responsible for 25% of the changes occurring in accounting information quality. We also note that the regression coefficient was estimated at 0.39 with a significance level of (0.00), and this means there is a statistically significant effect between information security and accounting information quality, where increasing the use of information security by one unit leads to an

increase in accounting information quality by 39% of this unit, and accordingly the fifth sub-hypothesis is accepted, which states that there is a significant statistically significant effect of information security on accounting information quality in the institution under study at the significance level (0.05≥α).

29-. Second Main Hypothesis H2: There are statistically significant differences at the significance level (0.05≥α) for modern information and communication technology and accounting information quality attributed to variables (age, educational qualification, job grade, professional experience). To test the validity of this hypothesis, one-way analysis of variance ANOVA One-way was used to analyze its results.

Table No. (15): One-way variance of study members' response to modern information and communication technology and accounting information quality attributed to variables (age, educational qualification, job grade, professional experience)

Study variables	Variance sources	Mean squares	Significance level sig
Modern information and communication technology and accounting information quality	Between groups Within groups	0.360 0.404	0.346
	Between groups Within groups	0.444 0.404	0.334
	Between groups Within groups	0.368 0.411	0.365
	Between groups Within groups	0.000 0.406	0.999
	Between groups Within groups	0.429 0.375	0.929

Source: Prepared by the researchers based on SPSS 22 program.

It is clear from the table results that there are no statistically significant differences by each of the variables (age, educational qualification, job, professional experience) in the perception of the study sample in the institution under study, where the significance levels of differences came (0.346), (0.334), (0.365), (0.999), and (0.929) respectively, all of which are levels greater than the current significance level represented in (0.05), and accordingly the hypothesis is rejected that there are statistically significant differences in individuals' response about the effect of modern information and communication technology on accounting information quality attributed to variables (age, educational qualification, job grade, professional experience) at the significance level (0.05≥α).

Conclusion:

Information and communication technology has become of significant weight due to the characteristics and features it enjoys, which can have some implications in various fields. Information and communication technology has become one of the most important means used by various institutions in management operations from planning, supervision, documentation, and administrative affairs or even accounting and financial practices, and

employing modern information and communication technology in producing accounting information for various decision makers, and this is by having a set of characteristics that this information can be distinguished by, whether they are primary or secondary characteristics.
Through the field study we conducted at Algeria Telecom in Chlef Province, we conclude that the institution uses modern information and communication technology, the most important of which are computers, software, and communication networks, in addition to individuals who possess skills and knowledge of how to use modern technology and techniques. Modern information and communication technology has a fundamental role in raising the level of performance, through processing and operating the huge amount of information and data in a short time and at a lower cost by electronic systems, in addition to the possibility of detecting errors as well as correcting them and producing accurate accounting information of high quality, and then delivering it to its various users at the appropriate time with the aim of helping them make sound decisions.

Results: Through analyzing the results, the following became clear:
- According to study sample members, there is a high level of application of modern information and communication technology in the institution under study with an arithmetic mean of 4.22, where:
· Through the responses of study sample members regarding the level of hardware, it was found that it is available at a high level with an arithmetic mean of 4.29.
· According to sample members' responses regarding the level of software, it was found to be available at a high level with an arithmetic mean of 4.24.
· From the responses of the studied sample members, it was found that networks in modern information and communication technology are available at a high level with an arithmetic mean of 4.26.
· Based on sample members' responses regarding human resources, it was found to be available at a high level with an arithmetic mean of 4.13.
· According to sample members' responses regarding the level of information security, it was found to be available at a high level with an arithmetic mean of 4.19.
-The existence of a high level of accounting information quality in the institution under study with an arithmetic mean of 3.62.
- The field study showed the existence of a strong correlation between the use of modern information and communication technology and improving accounting information quality, where:
· Hardware contributes to improving accounting information quality in the institution under study by 68%;
· Software contributes to improving accounting information quality in the institution under study by 51%;
· Networks contribute to improving accounting information quality in the institution under study by 53%;
· Human resources contribute to improving accounting information quality in the institution under study by 63%;
· Information security contributes to improving accounting information quality in the institution under study by 49.9%.
- Regarding the first main hypothesis that stated the existence of a statistically significant effect at the level ($0.05 \geq \alpha$) of information and communication technology on improving accounting information quality in the institution under study, it was verified, and the stated hypothesis was accepted, where the use of modern information and communication

technology is fundamental in order to provide appropriate and accurate information, and this accounting information is characterized by high quality. The Algeria Telecom Directorate in Chlef uses devices, equipment, and software in various departments and through modern systems in order to facilitate tasks and work, and make decisions based on the quality of accounting information.

- As for the second main hypothesis, which states the existence of statistically significant differences at the level ($0.05 \geq \alpha$) for modern information and communication technology and accounting information quality attributed to mediating variables (age, educational qualification, job, professional experience). The alternative hypothesis of no differences was accepted.

We can recommend the following:

· Increasing the awareness of institution members about the importance of modern information and communication technology and the role it plays in achieving survival and continuity for the institution.

· Working to raise the competencies and skills of individuals in using modern technologies and techniques with the aim of keeping pace with various technical changes, through attention to training, formation, and qualification of individuals with the aim of raising their scientific and practical skills and keeping pace with all developments related to electronic activities.

· The necessity to work on providing appropriate conditions to obtain high-quality accounting information due to its importance.

· Working to make the institution choose and use high-quality accounting information because it helps in making sound decisions.

· Granting more opportunities for accountants and specialists to develop and keep pace with international accounting standards and procedures.

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