

ICT Adoption by Internal Auditors in Algerian Companies

تبنّي تكنولوجيا المعلومات والاتصال من قِبَل المدققين الداخليين في الشركات الجزائرية

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Abstract:

This research aims to assess the information and communication technologies (ICT) used in internal auditing missions within Algerian companies. A survey was submitted to a sample of 100 companies, the statistical tools were used for data analysis and hypothesis testing by the SPSS program. The empirical results indicate that the achieving of internal auditing activities is weakly based on ICT, especially the material resources are not sufficient, the audit work is not carried out with the help of software, internal audit structures are not equipped with a computerized information system for the permanent monitoring of plans and recommendations, and the communication is not based on ICT.

Keywords: ICT adoption, internal auditors, computerized auditing.

Jel Classification Codes : M420

I- Introduction :

Contemporary development in information and communication technology (ICT) and its generalization in business life, planning, management, administration, and accounting, constitute a challenge for internal auditing to acquire this technology and audit computerized accounting systems. Furthermore, most firms and companies in Algeria use a computerized system for finance and accounting, trade, production, and human resources management. So all companies' data, including financial and accounting is stored electronically.

The IAF's role has evolved from traditional (accounting and financial control) to more strategic (risk management and governance) in a changing business environment where IT plays an important role; hence, the need to understand IT governance as a component of this expanded role. As a greater amount of the information that should be evaluated has become computerized and paperless, the focus of the auditor should also change to computerized detection with the use of pertinent IT instruments. Further, the Institute of Internal Auditors (IIA) supports the IAF's IT-related activities with a series of practice guides addressing issues related to IT management, control, and security (Global Technology Audit Guides, GTAG) or

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specific aspects of IT risk and control assessment (Guides to the Assessment of IT risk, GAIT). (Heroux & Fortin, 2013)

The purpose of implementing the internal auditing function within organizations is to participate in risk management and prevent fraud and corruption. Therefore, the internal auditing function's effectiveness and efficiency will depend on its instruments. This work deals mainly with the assessment of the degree of use of ICT in conducting internal audit missions within Algerian companies, to achieve efficiency and take the benefits provided by this technology.

The importance of this research is based on two crucial aspects; on one hand, the importance of ICT in the contemporary management of companies, and the importance on the other hand of the internal audit as a pilot function that participates in the creation of value within companies. Also, a few studies concerning the use of information technology by internal auditors in Algeria seem to be observed.

In light of the foregoing, the problem of this study is summarized in the following question What is the level of appropriation of "ICT" in conducting internal auditing within Algerian companies?

This work is structured as follows: firstly, the introduction, secondly literature review and hypothesis, thirdly methodology, fourthly discussion of results, and finally the conclusion.

II- Literature review and hypothesis:

The PC is one of the most prevailing advances of the twentieth century. It has tremendously affected numerous territories of human movement, including design, medication, science, and business. Data and correspondence innovation (ICT) or electronic information handling (EDP) has changed the howmerous associations'. ICT is one of the major mechanical advances in business over the most recent 40 years. ICT frameworks can perform numerous assignments, and executives are constantly finding better approaches to use the PC to elevate operational effectiveness and to help in dynamics. (Yang et al., 2004)

The effect of implementing information technology, and especially information systems, becomes quickly noticeable within the internal audit office. The internal audit of a company evolves to be in a position to follow developments and control new business procedures. With information technology entering business operations to a great extent, all auditing procedures that were followed are being adjusted to the new circumstances. (Abu-Musa, 2004).

The study of Abu-Musa (2008) about the use of IT by internal auditors in Saudi organizations concluded that the IA focused on new practices of controls and security, such as data integrity, evaluation of management, and the safeguarding of IT assets, organize handling, and system fulfillment.

The study reveals that the objectives of internal controls are positively and significantly associated with the zones of testing recognized by IFAC. The presence of a new process may assume a function in auditors' testing procedures. The size of the internal audit office, the number of IT auditors, and the kind of network processing do not significantly affect the evaluation cycle IT can play a dual role in risk management, it can increase organizational risk, although can support the implementation of Enterprise Risk Management (ERM), helping organizations comply with expanding legal conditions.

The Internal Audit Function must not just comprehend the IT utilized by the organization; however, it should likewise comprehend pertinent administrative and privacy laws. The IAF should employ the proper degree of IT refinement to assess and manages organizational risk, controls, and compliance (Weidenmier, 2006)

(Karagiorgos et al., 2017) found that Greek companies seem not to pay proper attention to the issue of internal audit, thus forming understaffed internal audit departments only for institutional reasons. However, these companies also appear to be appreciative of the

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subject of internal audit and information technology, as they have responded that internal audit is active in this field. Internal audit in Greece is still in the elementary stage. However, Greek companies use information technology at increasing rates, with its most interesting application field being the implementation of Enterprise Resource Planning (ERP) systems.

The study by (Saqib et al., 2019) revealed that the independence of the internal audit department (IIAD) and management support of internal audit (MSIA) are the major determinants of internal audit effectiveness. Moreover, the findings of the study suggested that the promotion of IIAD and MSIA is essential to enhance the internal audit process. Without the promotion of these two determinants, it is quite tough to enhance the internal audit quality level. Moreover, IT has a key role to enhance the positive effect of IIAD and internal audit effectiveness (IAE), particularly in Pakistani banks. It is needed to introduce IT for the betterment of internal audit practices. It is recommended for the Pakistani banking industry promote IAE through better internal audit department independence and management support. It will automatically enhance the performance of banks and affect positively the economy.

Surendranath et al. (2010) studies the perception of organizations' decisions concerning SOX 404 by the capital markets. The empirical findings recommend that the market responds favorably to firms that invest in SOX 404-related IT. The perception is more positive for companies without previous detailed internal control lacks/shortcomings. Moreover, the results may hold the thought that organizations with higher risk and weaker financial information quality can manifest their ability to strengthen internal control by promoting the use of IT for SOX 404 compliance.

Donza (2015) found that overall, the senior managers appreciate the IT auditors' performance. They value their methodology and their eagerness to develop the IT system and alleviate IT risks. They expect additionally more help for the IT management process, especially for the arrangement between IT investments and business needs and between IT risk management and the value created by IT. To achieve this objective, IT auditors should develop their skills and competencies, extend their activities, be more proactive, and play a successful role in IT monitoring.

Cette et al. (2012) carried out a comparative study on the diffusion of ICT between the countries of Europe and the USA. They found that: the correlation of the diffusion of ICT, positive with the level of education and negative with the rigidities of markets, is growing (in absolute value) and then stabilizes in the middle of the nineties. The estimates produced in all the countries considered lead to a fall (in absolute value) in the price elasticity of ICT demand; estimates confirm a (positive) influence of the proportion of tertiary graduates and (negative) market rigidities on ICT diffusion. These effects are accentuated when the diffusion of ICT is already important.

IT governance is an important responsibility system to prompt foreseen conduct in the utilization of innovation among the workforce. The management upholds impact the technology usage, IT committee, and IT support service do not affect technology performance. Thus, audit organizations should fortify IT monitoring by determining the choice rights and responsibility structure to boost desirable behavior among the public sector auditors in Malaysia. (Veerankutty et al., 2018)

III- Research hypotheses:

To provide elements of responses to the problem and achieve the study's objectives, we propose the following hypothesis:

H0: The conducting of internal auditing within Algerian companies relies strongly on ICT.

IV- The study methodology:

The study population consisted of all the internal audit directors, internal auditors, and accounting and financial executives of the selected companies, we sent out 100 questionnaires and received 55. The sample consists of a variety of sectors: trade, production, service, and financial institution. For the collection of data we exploited two tools: Review of the literature, for the collection of secondary data and the determination of the theoretical framework of the analysis. The questionnaire: for the collection of primary data, it was administered to the members of the sample, it consists of two parts:

1. The first part: gather the personal information of the respondent, his qualification, his function, etc.

2. The second part: brings the answers to the problem, it contains 8 questions:

- Q1. Is the internal audit structure equipped with sufficient material resources?
- Q2. Is the audit activity realized using a software program?
- Q3. Does the internal auditor analyze all the information needed to achieve the objectives of the mission?
- Q4. Are the results obtained based on the necessary analysis and evidence?
- Q5. Is the internal audit structure equipped with a computerized information system for the ongoing monitoring of plans and recommendations?
- Q6. Does the Internal Audit Department systematically communicate with senior management and the Board of Directors via the new ICTs?
- Q7. Do internal auditors have the necessary communication skills?
- Q8. Is your communication based on new information and communication technologies?

The answers are quantified according to the Likert scale of 1 to 5, as follows:

- A score of 1 is given for the answer "not at all agree", 2 for the answer "disagree", 3 for "neutral", 4 for "agree" and 5 for "strongly agree".
- After the data collection we used the statistical tests using the "SPSS" program to test the hypothesis, it is:
- The "Cronbach Alpha" test, to test the consistency and stability of the questionnaire.
- Descriptive statistics: percentages, frequencies, averages, and standard deviations, to describe the responses and analyse the trend of the factors.
- The nonparametric test "Kolmogorov-Smirnov" to test the normality of the variable.
- The T-test for a sample to test the hypothesis.

V- Discussion of results:

1. The stability of the questionnaire

The reliability of the questionnaire means having the same result if the questionnaire is redistributed under the same circumstances. Cronbach's alpha coefficient was used to measure the stability and reliability of the questionnaire. The value of Cronbach's alpha for all the items of the questionnaire is greater than 80%, which means there is very high reliability. As shown in the below table.

Table (1): Reliability statistics

Cronbach alpha	Number of elements
0.821	8

The source: (SPSS output, 2020).

2. Descriptive statistics:

Table (2): Characteristics Of the sample

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Qualification	Frequency	%	Function	Frequency	%	Sector	Frequency	%
Bachelor	32	58	Internal auditing manager	10	18	Service	12	22
Master	11	20	Internal auditor	21	38	Trade	9	16
PHD	1	2	Finance and accounting manager	7	13	Industry	27	49
Other	11	20	Other	17	31	Financial institution	7	13
Total	55	100	Total	55	100	Total	55	100

The source: Compiled by authors.

Table 2 above provides descriptive information concerning the sample's demographic characteristics. The respondents of this study comprise 10 internal auditing managers (18%), 21 internal auditors (38%), and 7 finance, and accounting managers (31%). That the majority of the sample has a higher level of education bachelor and more (than 80%), so they can give an opinion about the appropriation of ICT in internal auditing. 49% of the companies in the sample belong to the industrial manufacturers' sector, followed by service delivery with 22%, then the trade sector with 16%, and finally financial institutions with 13%. The distribution illustrates the variety of the sample.

Table (3): Descriptive statistics

		Not at all agree	Disagree	Neutral	Agree	Strongly agree	Mean	Standard deviation
Q1	Frequency	4	16	20	11	4	2.91	1.041
	Percentage	7.3	29.1	36.4	20	7.3		
Q2	Frequency	30	11	5	7	2	1.91	1.221
	Percentage	54.4	20	9.1	12.7	3.6		
Q3	Frequency	-	4	17	19	15	3.82	0.925
	Percentage	-	7.3	30.9	34.5	27.3		
Q4	Frequency	-	4	12	19	20	4.00	0.943
	Percentage	-	7.3	21.8	34.5	36.4		
Q5	Frequency	5	19	12	9	10	3.00	1.277
	Percentage	9.1	34.5	21.8	16.4	18.2		
Q6	Frequency	3	7	10	18	17	3.71	1.197
	Percentage	5.5	12.7	18.2	32.7	30.9		
Q7	Frequency	-	9	20	24	2	3.35	0.799
	Percentage	-	16.4	36.4	43.6	3.6		
Q8	Frequency	6	15	22	9	3	2.78	1.031
	Percentage	10.9	27.3	40	16.4	5.5		
		Minimum		Maximum			Mean	Standard deviation
ICT VAR		1.63		4.88			3.1841	0,743

The source: Compiled by authors.

An analysis of the sample responses is carried out on their perceptions of using ICT in internal audit missions. Table 3 shows that the mean score is ranging from 1.91 to 4, indicating agreement that the ICT is adopted for internal auditing function. The global overall average of ICT use in conducting internal auditing missions is 3.18, and the standard deviation is 0.74, so the use of ICT is just normal in the sample. Further analysis is carried out in the next section to confirm the results.

VI- Hypotheses test:

The sample size is greater than 30, so we can use a one-way parametric T-test on the right for a single sample at the 5% significance level, even if the variables don't follow the normal distribution.

Table (4): One sample T-test

	Test value = 3		Sig. (2 tailed)	Mean Difference	95% confidence interval of the difference	
	T	Df			Lower	Upper
Q1	-,647	54	,520	-,091	-,33	,14
Q2	-6,62	54	,080	-1,091	-1,37	-,82
Q3	6,561	54	,000	,818	,61	1,03
Q4	7,866	54	,000	1,000	,79	1,21
Q5	,000	54	1,000	,000	-,29	,29
Q6	4,394	54	,000	,709	,44	,98
Q7	3,208	54	,002	,345	,17	,53
Q8	-1,570	54	,122	-,218	-,45	,01
ICT VAR	1,837	54	,072	,18409	,0163	,3518

The source: (SPSS output, 2020).

The significance for items: 1, 2,5, and 8 are greater than 0,05 so the null hypothesis is accepted, the material means are not sufficient, the audit work is not carried out with the help of software, internal audit structures are not equipped with a computerized information system for the permanent monitoring of plans and recommendations, and the communication is not based on ICT. Consequently, the internal auditing function within the sample hasn't promoted the use of ICT.

On the other hand, the significance of items: 3,4, 6, and 7 are less than 0.05, the null hypothesis is rejected indeed. So the internal auditors analyze all the information necessary for the achievement of the objectives of the mission, the results obtained are based on the necessary analyzes and evidence, and the internal audit department systematically communicates with the management and the board of directors the auditors have communication skills.

For the overall variable that summarizes all items and makes it possible to assess the use of ICT within the companies in the sample, the observed significance is 0.072 greater than 0.05, the null hypothesis is retained, and the conducting of internal audit in the Algerian companies is weakly based on ICT.

VII- Conclusion:

This paper aimed to assess the adoption of ICT by the internal audit in Algerian companies. After analyzing the data and testing the hypothesis, we concluded that the use of

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ICT in conducting internal audit missions is worse, especially in terms of the existence of material resources, and the use of software for performing and managing internal audit work. The practice of internal auditing regarding ICT seems to be in the elementary stage and needs more development of ICT tools to enhance the effectiveness of internal Auditing.

Given that this research is attempted in one country the generalizability to other countries may rely upon the results of future studies. Further research is needed to study the factors that may affect the adoption of ICT by internal auditing.

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