

## **ABSTRACT**

**Purpose** – The aim of this study is to examine continuous auditing in the digital age from the perspective of audit firm employees. It also investigates contemporary factors affecting continuous auditing, as well as the techniques that could be utilised for its implementation.

**Methodology**– Internal audit departments of private companies were contacted via email and given a questionnaire developed based on the extant literature. The sample consisted of 105 individuals employed in the largest audit institutions in Greece. Data were analysed using multiple regression.

**Findings**– As expected, technological advances are indispensable for the establishment of an effective digital auditing system. The impact of data protection measures against cyber attacks as well as employees' skills and training were found to be significant. Particular attention should be given to the preparation and building of virtual auditing teams.

**Research Limitations** – The fact that the digital era is still nascent with its final outcomes not yet visible makes it difficult to produce accurate predictions and draw conclusions. Further, there is a need to survey salient stakeholders in other country contexts beyond Greece pursuant of producing generalisable results.

**Practical Implications**- The actions taken by companies to ensure cyber security and the formation of virtual teams were found to be highly significant for the implementation of a real-time auditing process. Traditionally, factors such as cost and time play an important role in optimising internal continuous auditing. Technological advancements combined with careful, strategic and case-specific implementation have the potential to enhance the efficacy of older methods.

**Social Implications**- The positive propensity of staff to adopt technology and modern techniques illustrates how implementation difficulties can be overcome through the redefinition and scheduling of an organisation's objectives and training of its personnel.

**Originality** –Audit firm employees highlighted the protection of personal data, the avoidance of cyber-attacks and training as major continuous internal auditing goals. The results indicate acceptance towards technology and modern techniques, provided companies ensure adequate preparation and staff training conditions.

**Key words** – digitisation, internal audit, continuous audit, accounting, information systems, virtual teams.

## 1. INTRODUCTION

As global markets increase in complexity, the interrelated risks are multiplied, increasing the need for timely and accurate audit procedures (Beasley et al., 2005). New technologies are changing the manner in which knowledge is managed, calling for inventive knowledge management systems (Santoro et al., 2018). For instance, nowadays, cyber security jeopardises the reputation and operational and financial stability of organisations. The need for advanced data protection creates a plethora of new auditing challenges, as witnessed by the General Data Protection Regulation (GDPR). The lack of relevant skills in this respect amongst employees and executives makes a stressful situation worse. Training courses focussed on the use of new technology, building and managing virtual teams as well as cyber-crime prevention measures need to become a larger part of contemporary business frameworks (Lin et al., 2019).

In recent years, organisations have been striving to devise more effective ways of optimising their performance, while still maintaining market share and achieving competitive advantage (Lizarzaburu and Del Brio, 2018). A strong system of internal audits, designed to add value and improve procedures (Ibrahim, 2011; Drogalas et al., 2016), plays a key role in preventing cyber-attacks and acquiring qualified risk-prevention executives (Abdullatif & Kawuq, 2015). Continuous auditing promotes real-time (or near-real-time) control and sharing of financial information. The integrity of information can be evaluated at any given point and constantly verified to militate against errors and fraudulent activity. However, the time frame of the evaluation is largely dependent on the frequency with which accounting information systems are updated, which can be deficient due to budget constraints (Lois et al., 2017; Flowerday *et al.* 2006).

Most studies in this domain focus on technologies which are already utilised or the necessary professional skills auditors should pursue to improve their performance. Prompted by the perceived lack of knowledge and skills in the application of digital auditing (Clarke, 2018), this study aims to investigate a number of key continuous auditing factors that auditors should take into account in the digital era.

Continuous auditing is of particular interest for smaller and developing countries which are characterised as deficient in developing digital auditing platforms. Following the announcement of its fiscal deficit in 2007, Greece launched a fervent effort towards digital transformation (Kontiadis et al., 2008; Tsakanikas, 2009). The existing literature at the time related to continuous auditing highlighted the impact of information technology on internal audit procedures (Spathis, 2007) and the lack of technology-related investments. As more than a decade has passed since then, issues of audit flexibility, preparedness and personal data security demonstrate that internal auditors should consider a different set of measures.

The aim of this paper is to research digitised continuous auditing, from the perspective of employees in this sector. This is pursued by investigating the factors affecting the implementation of this auditing method. Actions taken to ensure cyber

security and the formation of virtual teams were found to be highly important for real-time auditing processes. Traditionally, factors such as cost and time play a significant role and, as expected, technological advances are indispensable for the establishment of an effective digital auditing system. However, results indicated a novel acceptance of, and demand for, technology as well as modern techniques from employees, provided administrations ensure adequate preparation and training conditions.

## **2. LITERATURE REVIEW AND RESEARCH HYPOTHESES**

During the 1990s, the globalization of banking activities made advances in technology and communication regarding financial services mandatory. Similarly, due to technological innovations in the current auditing environment, there is a growing interest in the concept of continuous auditing. This method ensures fewer errors and strengthens the fairness of the auditing process. It is argued that continuous auditing represents a stage in natural evolution resulting from the integration of traditional auditing procedures and new technology (Woodroof, and Searcy, 2001). Furthermore, this growth of technology advances must be considered through the relationship between public and private sector. Since government objective should shift from raising revenues to achieving social justice and efficiency (Mdanat et al, 2018), it is important to maintain a rigorous attitude towards digitization.

Flowerday et al. (2006) studied the way in which continuous auditing in combination with technology can play a key role in preventing deliberate or inadvertent errors. Results therein suggested that computer-assisted audit tools and techniques (CAATT) contribute substantially to the prevention of mistakes and errors. Kim et al. (2009) studied the technology acceptance model (TAM), which examines how people accept and use technology. Alles et al (2018) explored continuous monitoring of business process controls (CMBPC) in the US internal IT audit department of Siemens Corporation. Similarly, Vasarhelyi and Halper (2018) describe the Continuous Process Auditing System (CPAS) developed at AT&T Bell Laboratories designed to yield key metrics and analytics, providing auditors with a work platform to examine extracted data and prepare auditing reports. CPAS monitors operational analytics, compares them with standards and highlights issues that require attention from the auditor. On the other hand, Rikhardsson and Dull (2016) studied continuous auditing technology in small businesses. Their results indicated that technology was usually implemented to increase resource efficiency, but frequently perceived as a tool to fix data quality problems. However, in their case, implementation was not driven by an internal auditing department but by an IT or finance department.

In the context of Greece, studies into continuous auditing are scarce and those that do exist tend to revolve around the impact of Accounting Information Systems and Intelligent Systems (AIS and IS) for detecting Fraudulent Financial Statements (Spathis, 2007). Other studies may refer to its significance and connection to other fields of expertise such as risk management (Drogalas & Siopi, 2017) but with little focus on practical implementation capabilities. Similarly,

regarding corporate fraud and malfeasance, continuous assurance is considered a viable enterprise risk-management tool. For instance, Onulaka (2015) examines the feasibility of implementing continuous assurance as a means of facilitating early detection of fraudulent activities.

The ubiquitous use of accounting information systems has made them a prerequisite for audit firms to strengthen the technical and analytical skills of their employees, as well as to develop specialised teams capable of assessing IT effectiveness (Vasarhelyi and Romero, 2014; Issa et al., 2016; Lois et al., 2017). Virtual project teams are cost effective, but their management requires skills over and above those involved in traditional co-located project teams (Lin et al., 2019). It is important to raise business process standards and employee skills pursuant of forming high performance virtual project teams with existing resources (Walker et al., 2017; Kurupparachchi, 2006). Teeter et al. (2010) argued that the creation of virtual teams is an important technological breakthrough for remote interaction as they coordinate control activities between the auditors present at the audit site and the remote audit leader (Oussii 2015; Oussii 2018). However, as Alles et al. (2002) stated, one of the main reasons behind low adoption rates regarding continuous auditing is the high implementation costs. Based on the foregoing the following hypothesis was formed:

**H<sub>1</sub>.** The creation of virtual teams positively affects the implementation of continuous internal auditing.

Abdul-Hamid et al. (1996) showed that the use of modern, specialised software can generally shorten the time required for an internal audit. In a later study, Banker et al. (2002) argued that the adoption of information technology increases a company's productivity at the individual and collective levels by streamlining the audit procedure. Shaikh (2005) showed that systematic application of technology increased auditing efficiency and raised the productivity of internal auditors while reducing audit time. Teeter et al. (2010) noted that deploying technology for remote auditing facilitated the reorganisation of internal audit procedures by allowing staff to work virtually. The rapid processing and transmission of data from a company to the auditor reduces cost and increases performance (Oussii 2015; Oussii 2018). Given the findings from the literature regarding the value of continuous internal auditing and the essential importance of technology in the process, the second hypothesis was configured:

**H<sub>2</sub>.** Remote auditing positively affects the implementation of continuous internal auditing.

As technological innovations pullulate, so do the risks of data theft and interruptions of service. For example, Amin and Mohamed (2016) explored the perceptions of auditors in Egypt toward the challenges of Internet-reported financial

information quality, indicating that continuous auditing can offset the challenges associated with Internet financial reporting (IFR). According to a survey by Ernst & Young (2018), which recorded the opinions of senior executives from 221 banking institutions in Europe, North America and the Asia Pacific region, banks are struggling to bring digital procedures online without compromising security. The survey reported that 19% of banks estimate that they are now digitally mature or that they are digital leaders. A significant proportion of banks are willing to invest in technology to mitigate cyber-threats, defining enhanced cyber security as a major business priority. Chan & Vasarhelyi (2018), by studying various modes of continuous auditing, concluded that the methodology requires technological innovation to seamlessly function with traditional internal auditing practices. The results showed that through continuous auditing, financial data can be constantly verified to militate against errors and fraud. Moorthy et al. (2011) argued that it is of vital importance for today's auditors to acquire the professional skills needed to respond better and more effectively to their work. They also report that emerging technologies will change the techniques and approaches of business audits necessitating a clear understanding by auditors so that they can explain the effects of these changes to the company's managers and other interested parties. Important work has also been conducted by Henderson et al. (2013), in the same research framework as Moorthy et al. (2011), highlighting the role of knowledge in information technology for the accurate assessment of audits. In sum, it can be argued that knowledge, skills and technology need to be co-optimised to adequately defend the organisation from cyber-attacks, hence the third hypothesis is as follows:

**H<sub>3</sub>.** Actions against cyber-attacks positively affect the implementation of continuous internal auditing.

Brooks & Yu (2013) pointed out the importance of the organisation's geographical location and audit costs as factors involved in choosing a remote auditor. According to Vasarhelyi & Romero (2014), the use of accounting information systems has increased the need for strong technical / analytical skills and specialised teams capable of assessing the effectiveness of IT systems. In a recent study, Nurhajati (2016) focused on cloud computing and highlighted the importance of internal auditors in comprehending and adopting this technology for greater efficiency in business processes and auditing. Januszkiewicz (2017) concluded that technology plays a key role in the development of internal auditing by reducing the time and effort that internal auditors must spend on risk and compliance issues.

A company needs to make informed choices about the degree of technological improvement to implement, factoring in costs versus benefits in the auditing process. Two of the major factors influencing users' decisions are (a) perceived utility (PU), defined by Davis (2011) as "the degree to which a person believes that using a particular information system will enhance his work performance" and (b) perceived ease of use (PEOU), defined as "the degree to which a person believes that using a particular information system will reduce his effort". These two factors affect the auditor's attitude towards information technology and may affect their behaviour in accepting or rejecting new methods, although other

studies mention that the cost of investment in technology is not always as significant (Khlif, and Guidara, 2018; Alqudah et al, 2019).

Based on the above studies, two additional hypotheses were proposed related to cost and time:

- H<sub>4</sub>.** IT system installation costs negatively affect the implementation of continuous internal auditing.
- H<sub>5</sub>.** Time-consuming information collection processes negatively affect the implementation of continuous internal auditing.

In Greece, the Foundation for Economic & Industrial Research (IOBE, 2004) stresses the need for extroversion and internationalisation of the information and communication technologies (ICT) sector in the business and financial world. Kontiadis et al. (2008) highlighted the need for a wide-ranging debate to prepare the legal and regulatory framework for meeting the requirements of the digital era. Tsakanikas (2009) and Trapezanoglou (2010) warned that often the adoption and use of IT is focused mainly on the desire to appear innovative rather than to make the effort to develop systems endogenously. This is an intriguing line of argument which, if empirically supported, could shed important light on the disjoint between appearances and realities. Based on this, the sixth and final hypothesis is specified thus:

- H<sub>6</sub>.** Technology has no effect on the implementation of continuous internal auditing.

### **3. METHODOLOGY**

#### **3.1 Sample and survey**

The research sample was configured based on principles of convenience sampling and consists of 105 internal auditors employed in some of the largest audit institutions in Greece. A closed-questions survey was used as the data collection methodology for reasons of practicality, scalability and anonymity. Furthermore, the purpose was to follow and understand the motives of technological and innovation related decisions which renders subjective elicitations particularly pertinent. The survey items were based on a review of the literature and interviews with auditors, all of whom had previous experience of internal auditing.

#### **3.2. Multiple regression**

A multiple regression analysis was performed to evaluate the effects of six independent variables (each corresponding to one of the hypotheses delineated above) on the dependent variable, *continuous internal audit appliance*. The ordinary least squares (OLS) approach was used (Equation 1).

*Continuous internal audit appliance = b0 + b1(virtual teams) + b2(geographical distance) + b3(self-protection measures) + b4(installation cost) + b5(process time cost) + b6(technology)*

#### Equation 1

The dependent variable was defined by item No.11, "To what extent has continuous auditing been applied in recent years?". The first independent variable, "virtual teams", was based on item 16, "To what extent can virtual teams help internal audits?". Next, "geographical location" was based on item 22, while the third independent variable for protection against cyber hazards was based on item 23. To measure issues of cost and time, a dichotomous variable was used in each case. Specifically, cost was measured through item 29, "Is the installation of a modern audit information system a significant expense?" whilst process time was captured by asking "Do you find that collecting real time data / information from the audited body results in the audit process taking longer to complete?" The sixth and final independent variable is constructed from 4 items (13, 15, 17, and 19) and measures the ability of information systems and new technologies to elaborate audit procedures. The reliability of the questions was examined with Cronbach's alpha.

## 4. RESULTS

### 4.1.1. The role of technology in the work of the auditor

Table 2 shows descriptive statistics on the role technology in the work of an auditor. Thirty nine percent (39%) of respondents stated that internal auditing has been implemented "to a moderate extent" in recent years and 58.1% said that it helped identify errors or inefficiencies "to a large extent". Nearly half (45.7%) believe that information systems play a major role in continuous internal auditing and 45.7% strongly believe that RPA increased internal auditors' productivity and efficiency. A similar proportion (46.7%) of respondents agreed that technology improved auditing both at the individual and team level. On the other hand, 41.9% argued that attempting to use auditing software which differs from the implemented operating systems could be an obstacle. Interestingly, while the notion that artificial intelligence could replace the auditor in the future was rejected (41%), 38.1% believed that jobs will be lost in the future due to technological innovations. Finally, the majority of respondents (73.3%) consider that the installation of a modern IT auditing system is a major expense for their organisation. Although 51.4% of the respondents believed that data collection rendered the entire audit process more time-consuming, almost half the sample (48.6%) disagreed. A significant number of auditors (43.8%) were moderately convinced that virtual teams positively influenced internal auditing, while more believed that new information systems could reduce audit processing time (51.4%). The location of the organisation and the cost of the audit were deemed to be the most important factors for adopting a remote auditor strategy by 44.8% of those surveyed. Furthermore, 39% of respondents reported

that remote auditing increased the speed of processing and transmission of data to a large extent.

**Table 1.** Responses to the role of technology in the auditor's work (Likert)

	1	2	3	4	5
To what extent continuous auditing has been applied in recent years?	11 10,5%	18 17,1%	41 39,0%	28 26,7%	7 6,7%
To what extent does continuous auditing help detect errors, fraud or inefficiencies through technology?	- -	2 1,9%	16 15,2%	61 58,1%	26 24,8%
To what extent modern information systems play a key role in continuous auditing?	- -	2 1,9%	12 11,4%	48 45,7%	43 41%
Do you believe that the use of Artificial Intelligence will replace the work of the internal auditor in the future?	12 11,4%	43 41%	30 28,6%	15 14,3%	5 4,8%
To what extent does the contribution of Robotic Process Automation (RPA) can increase the internal auditor's productivity and efficiency?	- -	7 6,7%	37 35,2%	48 45,7%	13 12,4%
To what extent can virtual teams help internal audit?	5 4,8%	12 11,4%	46 43,8%	36 34,3%	6 5,7%
To what extent can the use of information systems (eg ERP) speed up the audit process?	- -	- -	11 10,5%	54 51,4%	40 38,1%
To what extent do you consider that an organization's geographic location and audit costs are factors that can lead to the choice of a remote auditor?	1 1%	5 4,8%	36 34,3%	47 44,8%	16 15,2%
To what extent does technology improve the audit process both individually and on team level;	1 1%	- -	9 8,6%	49 46,7%	46 43,8%
To what extent is the design of specialized audit software an obstacle to the implementation of internal audit due to the different operating systems implemented by each organization?	5 4,8%	21 20%	44 41,9%	27 25,7%	8 7,6%
To what extent job positions will be eliminated in the future due to technological innovations in internal audit?	7 6,7%	25 23,8%	40 38,1%	28 26,7%	5 4,8%
To what extent does remote audit increase the rapid processing and transmission of data-information by the auditee;	1 1%	20 19%	34 32,4%	41 39%	9 8,6%
To what extent was your organization threatened from cyber-attacks in recent years	26 24,8%	39 37,1%	25 23,8%	13 12,4%	2 1,9%
To what extent does your organization take self-protection measures from cyber-attacks?	2 1,9%	4 3,8%	23 21,9%	40 38,1%	36 34,3%
How important do you consider the acquisition of professional skills in the exercise of audit work?	- -	- -	4 3,8%	30 28,6%	71 67,6%

Regarding safety issues, 96.2% replied affirmatively when asked if their organisation had a data protection policy. Moving on, 75.2% believed that their companies had dealt with cyber-attacks in the past and 87.6% stated that data security practices were used in their organisations but only 38.1% strongly believed that they were sufficiently protected.

Finally, 67.6% of the auditors considered the acquisition of professional skills to carry out the audit work to be very important, and 77.1% were of the opinion that



the absence of training seminars was the most important reason for the inability of internal auditors to adapt to the new digitised environment in a timely manner.

**Table 2.** Responses to the role of technology in the auditor's work (Closed questions)

	YES	NO
Are data-information transmission security procedures used (eg. by using digital certificates, digital signature, and encryption techniques)?	92 87,6%	13 12,4%
Has a data protection policy been set?	101 96,2%	4 3,8%
Do you consider the absence of training courses in IT as the most important reason for not directly adapting internal auditors to the new digital environment?	81 77,1%	24 22,9%
Do you believe that the data - information collected from the audited entity makes the entire audit process time-consuming?	54 51,4%	51 48,6%
Is setting up a modern IT audit system an important expense for an organization?	77 73,3%	28 26,7%

#### 4.1.2 Multiple linear regression

Table 3 shows the macro-level results from the multiple regression i.e. analysis of variance (ANOVA) demonstrating a statistically significant linear relationship between the variables and the model in overall terms. At the coefficient level, statistical significance ( $p < 0.05$ ) denotes a positive effect on the implementation of continuous internal auditing and can be identified with respect to the creation of virtual teams ( $t = 4.14, p < 0.05$ ), the deployment of remote auditing ( $t = 2.07, p < 0.05$ ) and self-protection measures against cyber-attacks ( $t = 2.43, p < 0.05$ ). The more measures an organisation takes in these respects, the more likely it is that they will successfully implement a continuous internal auditing system. Interestingly, the largest beta coefficient occurred with respect to virtual teams, testifying to the high importance of this variable. The cost factor exerts a significant negative effect ( $t = -2.36, p < 0.05$ ). Thus, the more a company's managers believe that installing a modern information system is a significant cost to the organisation the less likely they will be to install continuous internal auditing. The belief that the process of collecting data was not time-consuming positively affected continuous internal auditing ( $t = 1.70, p < 0.10$ ). Finally, the indicator measuring technology did not exhibit any statistically significant relationship effect with the dependent variable ( $t = -1.19, p > 0.05$ ).

Standardised beta coefficients are directly comparable and provide a better picture of the importance of the independent variables in the model. In terms of impacts on the dependent variable, the most important variable is the "creation of virtual teams" (beta = 0.351), followed by "self-protection measures" taken by the organisation to avoid cyber-attacks (beta = 0.208). Third is the variable related to the cost of installing a modern IT auditing system (beta = -0.203) and fourth is the variable concerning process time (beta = 0.143). The evaluation of multicollinearity is shown in Table 4. Variance inflation factors (VIFs) are very close to 1 in all cases and

tolerance statistics are all well above 0.2 which confirms that multicollinearity is not present to an extent which could significantly bias the standard errors of regression coefficients.

**Table 3.** Macro-level regression results: ANOVA

ANOVA						
	Model	Sum of Squares	df	Mean Square	F	Sig.
1	Regression	39,744	6	6,624	8,299	,000b
	Residual	78,218	98	,798		
	Total	117,962	104			
a. Independent variables X1: Creation of virtual teams X2: Geographical location X3: Self-protection measures from cyber-attacks X4: Application Cost X5: Time-consuming procedure X6: Index (Technology)						
b. Dependent variable: Y: Continuous internal audit						

**Table 4.** Regression analysis

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
	1	2	3	4	5
(Constant)	,923	,828		1,115	,268
Creation of virtual teams	,413	,100	,351	4,142	,000
Geographical location	,203	,098	,176	2,078	,040
Self-protection measures from cyber-attacks	,234	,096	,208	2,433	,017
Application Cost	-,486	,206	-,203	-2,360	,020
Time-consuming procedure	,303	,178	,143	1,704	,091
Index (Technology)	-,215	,181	-,102	-1,190	,237

a. Dependent Variable: 11. To what extent has continuous auditing been applied in recent years?

## 5. Discussion

Data analysis confirmed a number of expected results, but the implications of this research should focus more on the unexpected findings. In particular, the majority of employees understand the strengths of continuous auditing as well as the need for information systems and technology to support it. The findings herein indicate wide acceptance for the method, but at the same time serious difficulties in the procedure after adopting it. Auditors applauded the deployment of remote auditing and were very clear that they would like to see it applied promptly. Furthermore, few problems were found regarding exploitation strategies after implementation. Moving on, the majority of auditors agree that due to time

consuming data collection as well as geographical distances, continuous auditing will provide a distinct competitive advantage. Only a small percentage of the auditors offered negative responses to technological advancements, with the main objections concerning data-driven obstruction. Therefore, the first finding of this research is the view that data collection is not considered as serious an issue in terms of time wasting, as usually found in literature.

There was some doubt about the utility of setting up virtual teams, which could be explained by the absence of well-implemented modern tactics in Greece's business and financial sector, since auditing in small countries has not yet reached its maximum level of development (Alqudah et al., 2019). Of course, different legal frameworks across countries must be taken into account, since virtual teams have different numbers of people who, to successfully work together, must have a degree of clearance. If the legal framework is not clear or does not provide the necessary clearance, it is likely that issues such as GDPR will prevent the formation of these groups.

However, the rest of the auditors' responses and the perceived positive impact of virtual teams on continuous auditing suggests a technology-oriented explanation. The statistical insignificance of technology as a determinant of continuous auditing may appear counter-intuitive at first glance. However, this may simply reflect respondents' placing higher priority weights on cost and time. Although a digital revolution is taking place in internal auditing, smaller and developing countries do not seem to be following this trend and seem to be acting randomly without a strategy for adopting available technological support (Mustapha and Lai, 2017). Furthermore, even with sufficient investment in technology, public and private sector organisations should allot time and resources to education, training and honing of the required skills needed to exploit these advances (Yilmaz, 2017). The great importance auditors in the study sample attached to preventing cyber-attacks appears to testify to this need.

However, while failures in past technology investments could explain the perceived lack of interest by some auditors in new processes, they still adhere to the simultaneous unchangeable importance of the other factors. The latter could be explained by the fact that new technological and market environment changes have rendered older systems and investments obsolete. At the same time, continued investment in new technologies and innovative systems seems to have come without the necessary incubation time that would allow controllers and staff to exploit the strengths of these systems. Thus, the possibility that the relatively small impact of technology on continuous auditing is not wholly due to lack of interest or weakness on the part of the auditing firms, should not be excluded. The lack of technological investment or inability to apply modern tactics could have its roots beyond audit collaborators. Public and private organisations, especially in smaller countries have

difficulty in keeping up with technological advances, either because of bureaucracy and delays or lack of investment in technology and training.

## 6. CONCLUSIONS

The capabilities and benefits of up-to-date technologies and practices are unquestionable; however, it is necessary to redefine the objectives of the auditor as well as the market. The basic contribution of this research at the theoretical and practical level is that the relevance and success of existing and past investments should be redefined before pursuing further investments. The results herein highlight three major goals that internal auditing must meet: the protection of personal data, the avoidance of cyber-attacks and the education of specialised personnel. Finally, the issues of time for collecting data and cautiousness towards technology were found to be less important compared to employees' willingness to implement continuous auditing. A number of intriguing issues rise from this research, such as the cooperation of internal auditors with public bodies and other organisations, the degree of influence that this cooperation has on technological and modern administrative familiarity levels and the different capabilities of each partner.

A significant shortage of certain skills was observed, but the causes of this deficiency remain unclear. Was it the result of defects in auditing practices or was the problem more profound and related to the degree that technological familiarity and training are rooted in the educational system of the country? This represents fruitful terrain for future research in this domain.

The above must be viewed in light of the fact that many audit firms, and indeed the wider world, are currently only experiencing the early stage of the digital era. Some outcomes are not yet visible, which makes it difficult to produce accurate predictions and conclusions. Furthermore, given the complexity of the subject there are more factors that could later be added into the model such as administrative mechanisms.

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