Empirical Analysis of The Impact of Information Technology On Forensic Accounting Practice In Cross River State- Nigeria.

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Abstract: The increasing rate of computer based financial crime has created a huge demand for the skills and services provided by forensic Accountants in the country. Forensic Accountants are specialized individuals who use information technology to gather and analyze evidence pertaining to the case they investigate. The main objective of this study was to investigate empirically, the impact of emerging information technology on forensic accounting activities in Cross River State. A survey, using self-administered interview was conducted to achieve this objective. Forty (40) interviews were conducted with various accounting professionals who are directly or indirectly linked to the business of investigative accounting. Data collected were analyzed using ANOVA statistic. The results of the study revealed that accounting professionals need to enhance their knowledge and skills of computerized accounting systems for the purpose of planning, directing, supervising and reviewing the work performed. Therefore, accounting professionals should better understand and evaluate their computerized accounting systems to enable them carry out more effectively, the business of investigative accounting now and in the future.

Keywords: Forensic accounting, information technology, computerized evidence, computerized investigation, forensic accountants.

Background of the study

Nowadays the business world is changing at a faster and faster pace. The reasons given for this is globalization, high IT investments and the rapid pace of technological change in combination with escalating costs of research and development. The usage of information technology (IT), broadly referring to computers and peripheral equipment, has seen tremendous growth in service industries in the recent past; its role has shifted over the last decades to become an important part of how companies manage and control their resources (Huang, 2005). Organizations are responding in different ways and at different rates to the wide range of IT based opportunities and pressures. As a result, "information technology plays a critical role in modern business, especially regarding the accounting functions" (Rumaswany, 2005). The accounting profession is witnessing major changes due to changes in technology. In addition to traditional accounting services, accountants are involved in such services such as attestation reviews, forensic accounting, and fraud examinations. Today's accountants must thus, posses the knowledge to remain updated and the skills to critically analyze various problems. Information technology (IT) has taken the firm's financial ledgers and reporting systems and no form of accounting is possible without it (Granlund and Mouritsen, 2003). As it pertains to investigative accounting the modern digital environment offers new opportunities for both perpetrators and investigators of fraud.

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In many ways, it has changed the way fraud examiners conduct investigations, the methods internal auditors used to plan and complete work, and the approaches external auditors take to assess risk and perform audits. While some methods, such as online working papers, are merely computerized versions of traditional tasks, others, such as risk analysis based on neural networks, are revolutionizing the field (Dixon, 2005). Today, almost every financial fraud incorporates the use of a computer, whether the fraud is falsifying invoices or electronic money laundering (Smith, 2005). In the case of financial statement fraud, entries probably exist as electronic journal entries, login records found in log files, and electronic correspondence between involved individuals. In recent years, auditors find themselves increasingly involved in evidence collection through computer forensics. As it pertains to fraud detection, computer forensics is the process of imaging data for safekeeping and then searching cloned copies for evidence (Gavish, 2007). Perhaps the most common example is seizing the computer of a suspect for analysis. In gaining access to or auditing the data on a digital device, computer forensics can also involve whitehat (legal) hacking, password and encryption cracking, key logging, digital surveillance, and intrusion detection. In the past three decades, much as been written about the impact of information technology on accounting. The primary focus of this writing has been on internal controls: How have computers affected the internal controls that, after centuries of testing by trial-and-error, were instituted to protect assets and promote accurate reporting. Existing research has focused mostly on the relation between IT investment and company performance notably in studies that attempt to measure the level of IT investment and company productivity or even the financial return on IT investments (Dedrick, Gurbaxani and Kramer, 2003). Protection and reporting however represent only one side of the problem. Equally important to achieving the overall objectives of accounting and accounting are forensic accounting (detection, investigation and litigation services). While considerable literature has developed on forensic auditing, little has been written on the effects of computers on

forensic auditing. This work contributes towards filling this gap. The purpose of this work was therefore focused specifically on the effects of IT related changes on forensic accounting function. In Nigeria, corruption, money laundering and other related crimes have assumed alarming proportions. Pervasive mismanagement of resources has become the order of the day both in the public and private organizations. Financial crime has become really pervasive and the likelihood of corporate fraud occurring has also become more severe. KMPG (2008) asserts that high-level financial abuse was hindering tax collection, making enforcement of law difficult and discouraging foreign investment. These spates of corporate failures have placed greater responsibilities on accountants to equip themselves with the skills to identify and act upon indicators of poor corporate governance, mismanagement, frauds and other wrong doings. It has become imperative for professional accountants to be grounded in the techniques for identifying, discovering as well as preserving the evidence of all forms of financial abuses (Manning, 2005). To match the capacity of financial crime level, sophisticated accounting techniques are necessary to detect, trace and resolve frauds especially when the results may impact negatively on the financial statements. An outgrowth of the increasing incidence of frauds and financial malpractices in corporate management is the emergence in the recent time of forensic accounting, a specialty that has developed improved ways of tackling these challenges (Howard and Sheetz, 2006). A nationwide study conducted by Kessler International showed that 39 percent of organizations have considered the need for a forensic accountant (KPMG, 2008). Companies in Nigeria are already taking advantage of them having found that they have the ability to qualify damages sustained by them whether or not involved in legal disputes and can assist in resolving disputes even before they reach the court room. They can also assist in designing effective internal control system and fraud prevention for organizations. However, despite the advent of forensic accounting the threats to businesses are worsen by the advent of modern information technology that have combined to replace old business practices and advanced the pace of electronically manipulated fraud and corporate financial mismanagement. The role of information is so complex nowadays that the current era is called information explosion era (Howard and Sheetx, 2006). Though accounting practice has improved tremendously, recently electronic frauds have become complex and mazy to a magnitude that they could go on unrecognized. This requires finding ways to overcome the new challenges (Ramaswany, 2005). Although IT is applied extensively in order to strengthen accountant's duties, its effect on forensic accounting operations is not investigated. In this research, besides studying different aspects of forensic accounting, explanation of them, the effect of IT on each of these aspects was examined and finally, it investigated if the development in application of IT actually affects different aspects of forensic accounting.

The Concept of Forensic Accounting

Forensic accounting, also called investigative accounting or fraud audit, is a merger of forensic science and accounting. Forensic science according to Crumbley (2003) "may be defined as application of the laws of nature to the laws of man." He refers to forensic Scientists as examiners and interpreters of evidence and facts in legal cases that also offers expert opinions regarding their findings in court of law. According to the Webster's Dictionary, Forensic Accounting mean, "Belonging to, used in or suitable to court, of judicature or to public discussions, debate and ultimately dispute resolutions, it is also defined as an accounting analysis that is suitable to the court which will form the basis for discussion, debate and ultimately dispute resolution. Joshi (2003) defined forensic accounting as the application of specialized knowledge and specific skill to stumble up on the evidence of economic transaction. Hinders (2009) explains forensic accounting as the integration of accounting, auditing, and investigative skills. Simply put, forensic accounting is accounting that is suitable for legal review offering the highest level of assurance and including the now generally accepted connotation of having been arrived at in a scientific fashion (Crumbley, 2006). Joshi (2003) ascribed the origination of forensic accounting to Kutilya, the first economist to openly recognize the need for the forensic account whom he said, mentioned 40 ways of embezzlement centuries ago. He, however, stated that the term "forensic accounting was coined by Peloubet in 1946. Crumbley (2001) wrote on the same when he stated that a form of forensic accounting can be traced back to an 1817 court decision. He stated also that a "young Scottish accountant issued a circular advertising his expertise in arbitration support in 1824" but that Peloubet was probably the first to publish the phrase forensic accounting. Investigation of fraud and corruption is confirmed thus, not to be new, even in Nigeria. It is only gaining prominence because of the growing wave of the crime under the seemingly new nomenclature the last five years (Coenen, 2005). Forensic accounting in the view of Howard and Sheetz (2006) is simply the process of interpreting. Summarizing and presenting complex financial issues clearly, succinctly and factually often in a court of law as an expert witness. It is concerned with the use of accounting discipline to help determine issues of facts in business litigation. From business, government, regulatory authorities, to the counts, evidence indicates that a high level of expertise is necessary to analyze current complicated financial transactions and events. As a result, forensic accounting has been thrown into the forefront of the crusade against financial deception (Rumaswany, 2005). Forensic accountants utilize accounting, auditing and investigation skills while conducting an investigation. These accountants are trained to look into the dispute in a number of ways. They often retain to analyze, interpret summarize and present a complex manner which is understandable and probably supported. Also they are often involved in various activities such as investigating and analyzing financial evidence, developing computerized, exhibiting documents and presenting the evidence obtained (Coenen, 2005). U.S news and world report listed "Forensic accountant" as one of the 20 not job tracks" of the future and has made this branch of accounting trendy.

Forensic Accounting is different from the old debit or credit accounting as it provides an accounting analysis that is suitable to the organization which will help in resolving the disputes that arise in the organization. This new and ground-breaking accounting has two main areas which are:

i. Litigation support and investigation and
ii. Dispute resolution

The former represents the factual presentation of economic issues related to existing litigation. In this capacity, the forensic accounting sustained by parties involved in the legal disputes and can assist in resolving dispute, even before they reach the court action, if dispute reaches the courtroom, the forensic accountant may testify as an expert witness. On the other hand, the latter is that of determining, whether criminal matters such as securities fraud which include financial settlement, identify theft and insurance fraud etc. in such complex cases forensic accountants make some recommendations/ actions that can be taken to minimize future risk or loss.

Need For Forensic Accounting

The need for forensic accountant arose because of the failure of audit system in the organization; as the organizational internal and external audit failed to figure certain errors in the managerial system. Experts in the field pointed out that the intense economic pressure, with more companies facing bankruptcy jobs and careers are at risk and employee feel pressured to maintain and support performance levels, forcing many to commit corrupt and whatever the reasoning may be, more and more forensic accountants are been called up to meticulously search though documents, discover new information and help in putting together the irregular pieces of company's financial puzzle to solve the vexing problems (Coenen, 2005).

The following are the important reasons for the growth of forensic accounting.

- Internal audit and audit committee as a point of the management function could not throw light on the different fact that other hidden aspects of corporate fraud.
- Rotation of the statutory auditor touches as part of the problem while it refuses emphasis but it adversely needs longer duration. The method of appointing the statutory auditors used not foolproof as its brooks collusion and lobbying.
- The certificates of the auditors are hardly scrutinized carefully especially when the reports are unclean and qualified.
- The internal auditors can surely detect what was happening but they are hardly in position to initiate proper action in proper time.

IT and Forensic Accounting

Some cross-sectional studies of IT impact have compared the business performance of firms with IT to those without IT, and statistically estimated the impact. Using data from Hardee's fast food Chain, Banker (1990) compared the performance of the restaurants deploying the positran technology (a computerized cash register point-of-sale and order-coordination technology) to those without Positran. They found that the use of the positran technology is associated with a significantly greater productivity for stores with high diversity of sales. The revolution in information technology has significantly changed the nature of business (Elliot, 1998) and created competitive advantages for those who appreciate its effects. The advent of IT has affected the form and substance of information, accounting not excepted. The introduction of computer technology into accounting systems changed the way data was stored, retrieved and controlled. It is believed that the first use of a computerized accounting system was at General Electric in 1954. During the time period of 1954 to the mid-1960s, the auditing profession was still auditing around the computer. At this time only mainframe computers were used and few people had the skills and abilities to program computers. This began to change in the mid 1960s with the introduction of new, smaller and less expensive machines. This increased the use of computers in businesses and with it came the need for auditors to become familiar with EDP concepts in business. Along with the increase in computer use, came the rise of different types of accounting systems. The formation and rise in popularity of the internet and e-commerce have had significant influences on the growth of IT audit. The Internet influences the lives of most of the world and is a place of increased business, entertainment and crime. IT auditing helps organizations and individuals on the internet find security while helping commerce and communications to flourish (Rimaswany, 2005). IT has significantly impacted the audit profession in the past two decades. First, firms are increasingly using electronic work papers to facilitate documentation. Second, large firms are developing computerized decision aids to assist them in going concern decisions, client acceptance issues, analytical procedures, etc. (Leech and Dowling, 2006). Third, even small audit firms have been encouraged to adopt IT such as electronic workpapers. Fourth, IT impacts the behaviour and attitudes of individuals working in the firm, and the structure and processes of the firm. For example, IT usage could reduce the time auditors spend performing computational and/or clerical tasks and improve the quality of audit judgments by structuring audit decision processes (Manson, McCartney and Sherer, 1997). Fifth, IT appears to increase audit quality and productivity through audit automation, eliminating certain audit procedures, and enhancing information and knowledge sharing capabilities (Vera-Munoz, Hov and Chow, 2006). Agreeing to the statement that certain TV series like for example, crime scene investigation or the CSI does elevate the importance of technology to a 'must have' status in any forensic investigation. In reality technology plays several roles in assisting the forensic accounting investigation and those roles need to be supervised and managed in order to support the objectives of the investigation. Forensic investigation involves a wide range of careful monitoring, assessments and evaluations when it comes to most real, accurate process of investigation and implies to most risky and delicate crime scenarios calling for forensics to take charge of every possible steps that leads to crime resolutions and further comprehensive research in the area of forensic studies. Technology brings in computer security as a form of defense against unauthorized and malicious

intrusion and computer forensics allows for identification of incidents, gathering of evidence, analysis of evidence and potentially recovery of records as there has been multi-disciplinary and inter-disciplinary nature of computer forensics extends to records management. It is suggested in this paper that computer forensics and records management are compatible disciplines and areas of study (Winters, 2004). The courts acceptance of computerized forensics evidence depends on how the overall scene investigated are protected and the deepness of records keeping and management is served at all times without any suspicious alterations and utterances towards any material used and presented as upper hand evidence in court hearings and proceedings (Rumaswany, 2005). The main role of technology in forensics involves easy access to convenience in finding out records and information to the highest level, gaining access to computer based files that is of importance in assuring the reliability, validity as well as effectiveness of CSI system and its operations, technology happens to be found at the centre core as it aids in storing and keeping of confidential evidence to the crime scene, a tool that brings in effective channeling of communication, studying, interpreting and diagnosing what crime anatomy it has been on a situational basis, computer based forensics help in testing evidences on a higher continuum allowing in forensic investigative outcomes appropriate and desirable as possible, keeping in a better track of profiles and the needed back up information files for a possible archives of crime cases that are undergoing investigations, court hearings by some of well known forensic pathologists/psychologists as well as certain FBI, CIA and other crime organized groups for a possible cases (Winters, 2004). Another essential role of technology is for records management as it implies to the exploration of forensic methods and techniques being associated with computer forensics. For instance, according to Winters, (2004), "the disciplines of records management and computer forensics allows for identification of incidents, gathering of evidence, analysis of evidence and potentially recovery of records" and so forensic team and expert could utilize computer forensics principles to positively enhance records management and have valuable knowledge and expertise to share with the other computer forensics colleagues example, towards metadata expertise, functional requirements for electronic records management, recordkeeping systems design and implementation methodologies, digital preservation and retention management" (Winters, 2004). In addition, proponents Wang, Gopal and Zionts (1997), believed in the "rapid advance in computer and network technology, computer-based electronic evidence has increasingly played an important role in the courtroom over the last decade." Furthermore, they have also noted that "computer forensics implies to the growing discipline rooted in forensic science and computer security technology, focuses on acquiring electronic evidence from computer systems to prosecute computer crimes, national security threats, as well as computer abuse, as there loses a certain mystique as a technique used solely by law enforcement and intelligence agents, and has become popular and powerful application employed by corporations as deemed for civil disputes also for employee terminations and some proceedings relating to intellectual property" (Wang, 2005). The future of computer based forensics is clear as government, courts, organizations and others are placing ample emphasis on fact finding grounds in support to computer related forensic records upon guarding of some inadequate recordkeeping, ensuring accuracy of forensic evidence records and the guarantee aspect that these are not being put into compromise as deemed important for the court to recognize. Computer forensics can help ensure that computer forensics provides support, backup and reassurance for forensic experts in performing in ideal role and tasking as well as the quest to ensure the ongoing accessibility and integrity of technology manifested knowledge and information. Smith (2005) has indicated that, technologies played an important role in daily activities of the society as benefits are derived for instance the UAE government can deliver e-services to CSI team also, Sing (1992) did claim that computer crime is of perilous move to forensic research as of the present as computer based control is needed for prevention of abuses in investigations as it requires forensic specialist for records construction and maintenance in assessing effective domains of the forensics. According to Hinders (2009), forensic accounting is a field that combines accounting with IT. One of the reasons is because forensic accountants, as the practitioners in the field, make use of sophisticated computer programs to analyze financial data and find evidence which would be legally valid during a court proceeding. Notably, objective verification is the primary goal of forensic accounting and is also the reason why forensic accountants are asked to testify in court cases as expert witnesses. Working on both civil and criminal court case, forensic accounting professionals may be asked to calculate economic damages or to present evidence of offences. Information need to be accurate because these are used to distinguish about how much something is worth. Today, information are mostly stored in the computers especially that businesses make use of IT at some level thus it is a duty of forensic accountants to understand and explain how IT plays a role in offenses and likewise how IT could pinpoint what particular components of information gathered plays a role in accumulating the offense. One of the key areas that IT can definitely support forensic accounting is database knowledge and an understanding of how the database system works (KPMG 2008). As such, forensic accountants may understand all the information but not all the systems involved with these information. Looking at an offense scenario from a fraud-awareness perspective, forensic data analysis would be simply with the aid of IT and, at times, IT experts in examining organizational data in order that patterns of fraud profile could be identified. This data/information could be logical and/or numerical and statistical. Neural-net and other data mining technologies, for instance, could be utilized for the purpose of developing models of fraud detection, prediction and prevention where known fraud patterns are lacking or obscure. Developing an offense scenario, translating this scenario into an offense profile and applying appropriate investigative techniques to corporate databases would be convenient using different technologies.

Technological Products for Forensic Accountants

Computer hardware and software could be both use in committing an offense but software manipulation proved to be more apparent. Operating systems software consists of programs which keep computers running as automatically as possible whereas applications software consists of computer programs that apply the computer to the user's needs through carrying out a task the user wants performed, both of which present challenges for forensic accountants to uncover fraud and other offenses. These software tools require forensic accountants to use state-of-the-art facilities and software tools to equal the capacity of the two (Nunn, McCguire, Whitcomb and Jost, 2006). Iwata (2003) related that most of the criminals behind offenses use sophisticated technology and accounting tricks. For the forensic accountants, there is the necessity then to dig deeper into a company's computer system. Bigler (2001) assert that without the proper equipment such a process could be difficult for forensic accountants. Forensic accountants can use specialized software and computer hardware to facilitate the preservation, collection, analysis and documentation of evidence. There are many new technologies that aid and allow investigators to recover deleted fields, crack encryption or codes and extract and sort data. One among the newly developed software program is that of KPMG Forensic Accounting which helps in determining how fraud was penetrated. This is through the preparation of TRACE or Transactional Representation of Assets and Court Evidence diagram. TRACE diagram provides a computer-generated graphical and concise summary of a series of transaction. This diagram also presents information on events or structures in an easy-read format for the purpose of mapping the flow of funds through the penetrator's private companies/accounts while also identifying the parties involved. Sing (1992) also stressed that the diagram is useful in providing litigation support to the civil and criminal proceedings. Another software program is called Gargoyle which can detect steganography, a process by which data can be hidden within other files. With the sue of steganography stolen data could be hidden and would not be detectable until Gargoyle. Gargoyle software was released by WetStone Technologies in May 2003 and was developed to work with the National Software Reference Library (NSRL). NSRL housed a collection of digital file signatures known as hashes that are developed from thousands of common software programs. Such hashes allow investigators to check if any alterations have occurred. Piazza (2003) emphasized that in addition to steganography Gargoyle is also equipped with 550 Trojan horse toolkits, 94 wireless war driving software tools, 455 encryption programs and hundreds of key-logging and password-cracking applications. Satov (2003) mentioned that a Houston-based company named Church Street Technology also introduced software which could be useful for forensic accountants and other crime-fighting agencies. The software developed enables the reconstructuring of shredded documents electronically, offering a speedier alternative to the laborious tasks of searching, matching and pasting strips manually. Such process uses proprietary digitizing techniques to scan shredded paper and then matches them with specialized software. This software can also reconstruct documents that have been cross-shred or cut into two directions into tiny pieces.

Advantages and pitfalls of computerized forensic investigation

According to Golden, Skalak and Clayton (2006), the utilization of software applications and understanding their capabilities from basic to advanced can bring rapid and powerful results to the successive phases of an investigation. To tap its efficiency, users must know how and why to employ such tools, making it difficult to assess whether forensic accounts – experienced or otherwise – are skilled users of these software as investigative tools. Forensic accountants must thereby understand that being aware of advanced software tools could bring added value and quality to the investigation itself. One of the benefits to forensic accountants of computerized investigations is that they will be able to analyze a large number of transactions, identifying trends, spotting documents that need further review and gaining initial insights while drawing away from the constraints of time and cost as the process does not require the accountants to wait for the cumbersome process of collecting documents by traditional means and therefore devote the time to more important things like analysis. Further, data mining proves to be cost-effective as well aside from being a more comprehensive approach than the hard-copy document review. Murphy (2009) notes that data mining is an art of analyzing large amounts of data in a manner that detects obscure facts, trends or inconsistencies in a complete and efficient manner utilizing intelligent computer applications. Data mining therefore benefits forensic accountant to proactively detect frauds and other offenses at the same time. In cases where hardcopy of documents may be incomplete, computerized information can assist in providing reasonableness of findings (Golden, Skalak and Clayton, 2006). Computerized information enables forensic accountants to investigate the entity of the offense be it corporate disputes, fraud, business economic losses and professional negligence among others by depending on computer records. Electronic data on its financial transactions are immense that is why forensic accounts are not limited to discreet number of records to base their findings from. With this, it would be also convenient for forensic accounts to present data in courts accurately and with supporting evidences. On the other hand, forensic accountants must also understand the pitfalls inherent with computerized information. Manning (2005) states that for one, data mining is just a component of the investigation process where computer and the amount of accounting-related information available could not be treated as a substitute for rational judgement and experience. Computerized information cannot replace document reviews, interviews and follow-up steps. Inherent to computerized information also is the risk of compromising data due to the fact that these are subjected to human manipulation. Likewise, this information requires double checking for accuracy and completeness. The rationale behind this is that an incorrect and incomplete data may contribute to premature and incorrect conclusions and findings. Carmichael and Graham (2009) assert that limitations of software tools could also impede with the

development of the investigation since there are certain data mining tools which may not be appropriate to certain tasks. The complexity of the tools used should be commensurate with the size and complexity of what it is being observed. Computerized investigation could breed an atmosphere of complacency because the tendency is for forensic accountants to rely too much on the tool itself. So that the operational and financial benefits of data mining could be maintained, forensic accountants must bear in mind that skilled and technical use of the tool must be combined with sound analysis and judgment. Forensic accountants must be also careful when it comes to copying a computer file because certain elements can be altered if not executed correctly (Singleton, Bologna and Lindquist, 2006). Proper computer forensic techniques should be used to avoid inadvertently altering evidence. Compliance with legal entities should be also considered particularly because not all environments are the same. Mohay, Anderson, Collie and Mckemmish (2003) also commented that before commencing data collection, planned procedures must be allowed from a legal perspective and that any evidence gathered may be used for legal purposes if required, nonetheless, forensic accountant must be also aware of specific regulations applied to export of data/information and privacy regulations attached to it. Proper legal advice must be sought in this case.

Computerized Forensic Analysis as Evidence

Mohay, Anderson, Collie and Mckemmish (2003) contend that a unique feature of computer forensics is the requirement that the application of the technology must be carried out with due regard to the requirements of the law. Failure to comply can result in digital evidence being ruled as inadmissible or as tainted. The court recognizes that the forensics technology and the evidences produced through such must embrace the legal requirements including admissible, authentic, complete, reliable and believable. Computer evidences to be successful in court must conform to certain legal rules before it can be put to a jury, must be possible to positively tie evidentiary material to the incident, must tell the whole story and not a just a particular perspective, must be nothing about how the evidence was collected and subsequently handled which causes doubt about its authenticity and veracity and must be readily available and understandable to members of a jury (Rumaswany, 2005). Amongst the mentioned legal requirements, admissibility is the most important as this relates with the conformity with common law and legislative rules. Vacca (2005) added that another requirement of the jury is that computer evidences should be free from interference and contamination to be regarded as real or testimonial evidence. A forensic accountant is obliged to determine whether computer evidences are of acceptable levels as a result of forensic investigation and other post event handling. Certain elements must be present with computer evidences to be admissible before the jury which include well-defined procedures, an anticipation of likely criticism, the possibility of repeat test to be carried out, checklist to support methods used, anticipation of any problems in formal legal tests of admissibility and acceptance that any methods now described would almost certainly be subject to later modification.

The study Area

This research work was undertaken in Calabar, Cross River State. This study area has various large and small scale businesses which boast of a host of professionals who are involved directly or indirectly in forensic accounting practice. This study area was assumed appropriate for this research work.

The Population of the Study

The participants in this study were individuals within the Nigerians public and private sector. The role of participants selected was in accounting, finance, auditing or a task related to the accounting information system. In order to identify all possible respondents the names and job roles were identified from the data base of the relevant departments within the Ministry of Finance, Accountant General Office and Auditor General Office. They were chosen as the target respondents as they are believed to represent the major accounting information system stakeholders within the organization and could be expected to have a better understanding of the information issues within each organization. This study dealt with individuals within their work environment. The individuals were the unit of analysis for this study. A semi-structured interview provides insights for identifying and understanding viewpoints, attitudes and influences. Interviews were conducted face-to-face through site visits. To ensure validity, information completeness, and a range of points of view more than one interviewer conducted the interviews.

Research methodology

The research adopted explanatory and survey research designs respectively. The explanatory research design enabled the collection of secondary data while the survey research design enabled the collection of primary data.

Sampling Design and Procedure

The probability sampling design was adopted and the procedure was the simple random sampling technique. This procedure was adopted because it gives all elements in the population and equal chance of selection. The sample size selected for this work was forty (40).

Sources of Data and Data Collection Method

Primary and secondary sources of data were adopted. The method of primary data collection was through personal interview. Sources of secondary data include journal articles published in magazines and downloaded from the internet Websites. The internet search engine like Goggle, Lycos and Yahoo also offered excellent search for locating on-line articles. Other references were also made on the research topic from various relevant accounting textbooks.

Data Presentation

Table 1 Demographic characteristics of Respondents

CATEGORY		FREQUENCY	PERCENTAGE (%)
Gender	Male	28	70
	Female	12	30
Age	<30 years	12	30
	31-39 years	8	20
	40-49 years	16	40
	>50 years	4	10
Education	Master's Degree	12	30
	First Degree/Equivalent	24	60
	Diploma and Lower	4	10
Experience with Forensic/investigative Accounting	<4 years	30	75
	>4 years <6 years	6	15
	>6 years	4	10
Experience with Forensic/investigative Accounting Technology	High		15
	Good	8	20
	Low	16	40
	Not at All	10	25
Job function	Accounting and finance	18	45
	Information management	4	10
	Auditing	16	40
	Others	2	5
Job Responsibility	Non-management employee	26	65
	Middle management	10	25
	Top management	4	10

Source: Field Survey, 2012.

Table 2 ANOVA results for the relationship between IT and Forensic Accounting

Source	**Sum of Squares**	**DF**	**M.S**	**F-cal**	**F-tab**	**P**
Between Group	3120.098	2	1560.049	51.01842	9.55	Sig*
Within Group	91.73445	3	30.57815			
Total	3211.832	5				

Note: DF = Degree of freedom; M.S = Mean Square
*Significant at P<0.05

The relationship between IT and investigative accounting performance was determined using ANOVA. Table 2 shows a summary of the relationship using ANOVA. The majority of the respondents agreed that they found the technology is useful for any task they needed to accomplish (85%). This single statement representing the usefulness issue, resulting in a positive and significant F-test (f-ratio at 0.05 is 51.02), P<.001. The results are suggesting that accounting professionals are receptive toward data mining technology. They have a positive view of technology, a tendency to be a technology pioneer, perceived the technology to be useful

as regards their job function. Interview data supported readiness toward data mining technology as they were very optimistic, innovative and have a perception on easiness and usefulness of such technology in their working environment especially as regards investigative accounting.

Summary

The results of the study showed that using IT causes remarkable changes in forensic accounting practice. Based on these findings, IT is generally used in performing different phases of internal auditing, especially performing content tests and in the process of performing analytical investigations and main operations. In a nut shell, the results revealed that: IT helps its users improve their performance. IT enables its users perform their duties with a higher validity. Those using IT say that it helps them focus and have a good feeling for their work. Upon these findings, software packages, extensive electronically sheets and other programs like planning software provide possibility of improving analytical investigations. Research reviews also showed that using IT causes accounting professionals to spend less time on probing and performing content tests and accuracy of mathematical calculations of office accounts rapidly. Accountants are no longer possible to simply "look in the rear-view mirror" and evaluate financial data as a sole basis for decision making for the future. Knowledge of IT is power in the 21st century. The accountancy profession in Nigeria should need to be well prepared for the advent of the information age.

Conclusion

One of the crucial limitations of our study was that it has only provided "snap-shot" results at a particular point in time and it is, in fact, a static analysis of a dynamic situation. Another limitation is the comparatively small sample size used in the survey. The results so obtained may not be representative given that the number of qualified accountants working in Calabar and Nigeria is very large, future in-depth rigorous study will definitely incorporate a more representative sample.

Recommendations

This study investigated empirically the impact of emerging information technology on forensic Accounting activities. The contribution this study has made to knowledge is that information technology is almost inevitable in the success of accounting investigations. Therefore, forensic Accounting should be included in the curriculum of study of Accounting in Nigeria Universities. Qualified Accountants should broaden their knowledge by striving for certification in forensic Accounting and become professional in the field.

References

1) Bigler, M. (2001). Computer Forensics Gear. *The Internal Auditor,* August, p27.

2) Carmichael, D R & Graham, L. (2009). *Accountant's Handbook 2009,* New York: John Wiley and Sons

3) Coenen, T. L. (2005). "Forensic Accounting," A new twist on bean counting," Tracy@sequence-inc.com

4) Crumbley, D. L. (2006). "Forensic Accountants Appearing in the literature," www.forensicaccounting.com.

5) Dedrick, J. Gurbaxani, V. and Kraemer, K. L. (2003). *"Information technology and Economic Performance: A Critical Review of the Empirical Evidence"* Centre for Research on Information Technology and Organizations. University of California, Irvine.

6) Dixon, P. D. (2005). An overview of computer forensics. IEEE Potentials, 24(5), 710.

7) Elliott, R. K. (1998). Who are we as a profession and what must we become? Journals of Accountancy (February): 81.(85).

8) Gavish, A. (2007). The Hidden Costs of Computer Misconduct. Security.

9) Golden, T. W; Skalak, S. L. and Clayton, M. M. (2006). A guide to forensic accounting investigation, New York: John Wiley and Sons.

10) Granlund, M., and Mouristen, J., (2003). "Problematizing the relationship between management control and IT", *European Accounting Review, (12) (1), pp. 77-83.*

11) Hinders, D. (2009). What is forensic Accounting?" retrieved on 4 June 2009, from http://www.wisegeek.com.

12) Howard S. and Sheetz, M. (2006). Forensic Accounting and Fraud Investigation for non-Experts, New Jersey, John Wiley and Sons Inc.

13) Huang, C. J. and Liu, C.J. (2005). "Exploration for the relationship between Innovation, IT and performance," Journal of Intellectual Capital, vol. 6, no. 2:237-252.http://dx.doi.org/10.1108/14691930510592825

14) Iwata, E. (2003). 'Accounting Detectives in Demand,' USA Today, 27 February.

15) Joshi, M. S. (2003). "Definition of Forensic Accounting" www.forensicaccounting.com.

16) KPMG (2008). "Fraud survey." Journal of Forensic Accounting, No 4 Vol. 36,pp 9-20.

17) Leech, S.A., and Dowling, C. (2006). An investigation of decision aids in audit firms: Current practice and opportunities for future research. Working paper, University of Melbourne.

18) Manning, G.A. (2005). Financial investigation and forensic accounting, CRC Press.

19) Manson, S.; McCartney, S. and Sherer, M. (1997). Audit Automation: The Use of Information Technology in the planning, Controlling and Recording of Audit Work. Edinburgh: Institute of Chartered Accountants of Scotland.

20) Mohay, G. M., Anderson, A., Collie, B., de Vel, O & McKemmish, R. (2003). Computer and intrusion forensics, London, UK Artech House.

21) Murphy, R. (2009). The DNA of a forensic accountant,' PricewaterhouseCoopers, retrieved on 4 June 2009, from http://www.pwc.com.

22) Nunn, L,; McGuire, B. L.; Whitcomb, C. and Jost, E. (2006). 'Forensic Accountants: Financial Investigations,' Journal of Business & Economic Research, vol. 4, no. 2, pp. 1-6.

23) Piazza, P. (2003). 'Now You See It, ' Security Management, December 2003, p 26.

24) Ramaswany, V. (2005), ' Corporate Government and the Forensic Accountant,' CPA Journal, No. 10, vol; 75, pp. 63 – 68.

25) Satov, T. (2003). ' Back from the Shred, ' CA Magazine, November, p 10.

26) Sing, A. (1992). 'Forensic Accounting: Looking for clues,' Australian CPA, march, p. 42.

27) Singleton, R., Singleton, A., Bologna, J. & Lindquist, R. J. (2006). Fraud auditing and forensic accounting, New York: John Wiley and Sons.

28) Smith, G. S. (2005). Computer Forensics: Helping to Achieve the Auditor's Fraud Mission. Journal of Forensic Accounting, vol, 119-134.

29) Vacca, J. R. (2005). Comptuer forensic: computer crime scene investigation, Cengage Learning.

30) Vera-Munoz, S.C., Hov, J. L. and Chow C.W. (2006). Enhancing knowledge sharing in public accounting firms. Accounting horizons 20 (2):133-155.

31) Wang, C.H.; Gopal, R.D. and Zionts, S. (1997). Use of data environment analysis in assessing information technology impact on firm performance. Annals of Operations Research 73:191-213.

32) Winters, B.I. (2004). Choosing the right tools for internal control reporting. Journal of Accountancy (February): 32-41.