



The Investigation of the Awareness of Implementing Blockchain Technology in Audit Trails among the Auditors

N.W. Deepashika Jayathilake, S M Chaturika Seneviratne*
Department of Accounting, University of Sri Jayewardenepura, Nugegoda, Sri Lanka

*Corresponding Author: chaturika@sjp.ac.lk

Abstract

Objective – The purpose of this study is to investigate the awareness of implementing blockchain technology in audit trails among Sri Lankan auditors.

Design/methodology – Exploratory research is conducted to investigate the awareness among the auditors regarding the implementation of blockchain technology in the audit trails. A qualitative research approach is applied to collect data through semi-structured interviews with auditors employed in a leading audit firm in Sri Lanka.

Results – There is a relatively lack of awareness about blockchain technology among auditors in general, which could be a roadblock to blockchain implementation in audit trials in Sri Lanka. Since blockchain has demonstrated potential as a technology that can transform auditing processes, there is possibility to build an audit trail, although more study is needed in this sector to be successful. Regardless matter where blockchain and audit trails go in the future, the audit profession will undoubtedly be impacted; however, it is yet too early to predict how.

Research limitations/implications – This analysis has taken a restricted perspective by relying just on auditors at one audit firm in Sri Lanka. If the perspectives and information of various auditing firms had been included, the study would have had a lot more to explore and analyze.

Novelty/Originality – This study contributes to the literature on blockchain technology in audit trials by documenting the existing knowledge of auditors. This will provide an in-depth comprehension of using blockchain technology in audit trials to clients, professionals, and overall society.

Keywords: Audit trail, blockchain, technology, Sri Lanka, audit firm

1. Introduction

The world of technology is evolving at a breakneck speed. In recent times, blockchain has grabbed the attention of people all over the world. Blockchain technology has already surged in recent years, allowing firms to reach new heights of profitability and competitiveness. Blockchain has gotten a lot of press in recent years because it has tremendous advantages, such as lowering trading costs, improving transaction auditability, speeding up transaction settlement, and improving monitoring effectiveness (Dai & Vasarhelyi 2017).

In particular, blockchain technology has the potential to disrupt whole businesses, particularly in the finance industry. There could be a disruptive change (Deloitte 2016). Accountants, auditors, finance specialists, and regulators would all be affected greatly by blockchain technology. Initially, this applied in the financial sector, but it is now being used in other fields such as accounting and auditing, supply chain management, government records management, voting systems, leasing contracts, real

estate, and healthcare. In addition, since the effectiveness and efficiency are comparatively higher than the other technologies, blockchain is also a fad in the accounting industry now. Technical improvements, particularly blockchain technologies, have enabled the accounting profession to expand and develop blockchain-based accounting procedures as a possible future for commercial information systems (Brandon 2016).

External auditors evaluate accounting records during an audit to provide reasonable assurance of financial statements' accuracy and integrity and to ensure they are prepared in accordance with accounting standards. Audits may be costly, time-consuming, and exhausting, requiring paper documentation, manual system reviews, and reviews of the validity of other sources. With blockchain, the dependency on human processes and record duplication could be decreased. Blockchain, in conjunction with other developing technologies (continuous auditing, IoT), has the potential to significantly alter the present audit paradigm (Dai & Vasarhelyi 2016).

Blockchain applications in auditing could benefit from automated audit processes, traceable audit trails, asset monitoring, and transaction authentication (Sahlin & Levenby 2018, cited in Baron 2017). Some of the advantages of blockchain come from the construction of a complete audit trail, where exceptions generated from a total population instead of a sample of transactions may be reviewed (Kokina et al. 2017).

Accounting professionals strive to guarantee that their company's financial data is accurate and error-free. Therefore, the information generated and tracked by a company's internal accounting department is audited by an independent third-party professional services firm. Although there are new accounting packages to make the transactions secured and ensure that they are monitored properly, there is a risk involved in it. There can be human errors since part of the process is done by humans. These errors might be simple blunders, but they can also be self-made changes to the audit trail's transactions, resulting in an erroneous ledger. And there is a high risk of manipulation in transactions and events.

There could be millions of transactions and events taking place in an organization in a single year. In an audit, there is no possibility to check each and every transaction within a given period. And if the auditor decides to check all the transactions there, it raises the question of the cost of verifying each transaction. By merely looking at a sample of transactions by the auditor, there is a chance that other inaccuracies in the audit trail will go unnoticed.

It requires a complex task to be fulfilled to create the audit trail in an accounting software system, which helps to modify the audit trail based on the requirement. An accounting software system used and developed today has several limitations. If the audit trails are generated manually, then an adjustment in a past transaction can have a big impact on the cost and time involved in the process (Sahlin & Levenby 2018). It is difficult to produce enough detailed and reliable audit trail documentation when there are flaws in the audit trail.

However, when applied to accounting software systems, blockchain has been presented as a feasible method for creating more efficient audit trails. Nonetheless, the advantages and problems associated with the application of blockchain in accounting and auditing have yet to be fully explored (Dai & Vaserhelyi 2017). There is a limitation of research on the implementation of blockchain technology in audit trails. This indicates a gap in the literature, presenting an opportunity to fill it by undertaking a study that would add to the field. Therefore, this study investigates the current status of awareness regarding the implementation of blockchain technology in audit trails among Sri Lankan auditors and the research questions are;

- How does the current audit process work and what are the issues encountered in the current audit procedures?

- How do the auditors work with blockchain and what is required to implement blockchain in audit trials?
- What are the improvements in the audit process if blockchain is implemented in audit trials?

The research methodology adopted in the study is a qualitative strategy, and it was used to gather information and experience from people who have the potential to work with blockchain and audit trails. One of the leading audit firms in Sri Lanka was selected as the research setting for the study. Through semi-structured interviews, it gathered data since the implementation of blockchain in the audit trails depends on the knowledge and awareness of the auditors.

Although blockchain in audit trials has not yet been commonly practiced in Sri Lanka, there is global evidence that this technology can reduce the risk involved in audit trails. This study provides an in-depth understanding of using blockchain technology in audit trials for clients, professionals, and overall society. Furthermore, the study's findings enable auditors to gain some understanding of how blockchain contributes to a more reliable, cost-effective, and secure audit trail, as well as how blockchain in the audit trail can help auditors achieve their objectives effectively and efficiently. This study raises awareness of the benefits of implementing blockchain technology in audit trials in the Sri Lankan context and establishes a platform for further research into blockchain deployment in the auditing process by collecting data and performing well-founded research.

2. Literature Review, Theoretical Framework, and Hypothesis Development

2.1 Concept of Blockchain

A Blockchain is one of the "buzz" words on everyone's lips these days, and the impact of technology on potentially dangerous situations in every aspect of our lives is widely acknowledged, both in academia and industry (Pugna & Duțescu 2020). The notion of blockchain was first proposed in 2009 as a solution to the technological difficulty of timestamping easily modifiable digital assets like music files, photographs, and text documents to monitor when they were created and when they were altered (Haber & Stornetta 1990). A blockchain is a decentralized digital ledger made up of blocks of transactions between two parties. Business scholars have recently started exploring blockchain as an emerging and potentially disruptive technology (Frizzo-Barker et al. 2019).

Blockchain can be described as a public, decentralized, distributed ledger that is capable of storing and confirming the transactions that pass through it (Lazanis 2017) and it has the potential to create new economic and social systems (Iansiti & Lakhani 2017). Blockchain not only speeds up the documentation and processing of individual processes, but it gives internal operational control (Shyshkova 2018). Many researchers believe that blockchain is likely to enhance efficiency in accounting and auditing (Coyne & McMickle 2017). The need for a central unit that approves, and records transactions is eliminated, but all information is set aside in the blockchain where it is accessible to all users. Because users have direct access to information, there is a higher level of trust between the parties, and the need for a middleman is gone (Underwood 2016). The use of a middleman causes a considerable lag between the transaction and the payment of high fees. In many areas of financial relationships and accounting, blockchain is an ingenious solution that eliminates the need for a trusted intermediary (Potekhina & Riumkin 2017).

A blockchain is a public, distributed ledger that generates and shares digital information; it is a record of digital events (Beck et al. 2017; Underwood 2016). Blockchains are distributed and rely on numerous nodes, whereas traditional databases are centralized and rely on one party to handle all data. When compared to centralized servers, blockchains are substantially more secure, and once a transaction is added to the network, it is considered to be immutable. This combines a high level of security

with a high level of automation to give an outstanding level of security (Hambiralovic & Karlsson 2018).

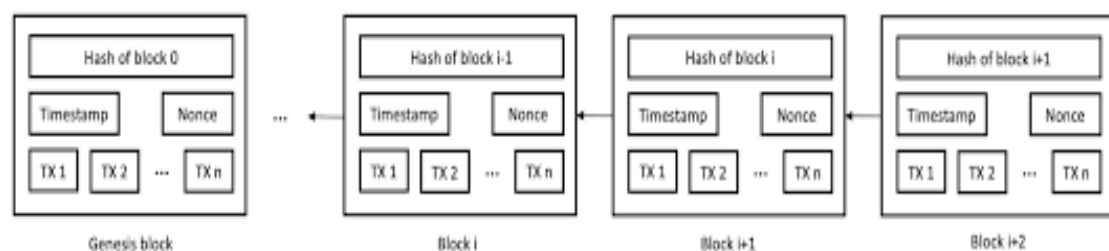
2.2 Blockchain Design and Architecture

Control, data ownership, privacy, and access are four major design decisions that must be made while creating a blockchain architecture. The main attributes of the blockchain technology architecture are public vs. private and permissioned vs. permissionless (Smith 2018).

The transactions are publicly observable using public architecture, and each participant can generate a transaction for the other participants. A private blockchain, allows only a limited number of nodes to access the ledger. As a result, private blockchains are more likely to be used by businesses (O'Leary 2017). A permissioned blockchain requires prior approval before it can be used, whereas a permissionless blockchain allows anybody to join the system. What accesses or views are granted is defined by permissioned (centralized) architecture. Private blockchains are typically centralized, whereas public blockchains are decentralized (O'Leary 2017).

The blockchain architecture is intended to function as a public, decentralized database. Every party in the network can read, verify, and update transactions in the chain in this system (Dai & Vasarhelyi 2017). Like a traditional public ledger, the blockchain is a series of blocks that carry a comprehensive list of transaction data (Zheng et al. 2018, cited in Lee Kuo Chuen 2015). Figure 1 illustrates an example of a blockchain. Each block has a reference to the block before it, which is effectively a hash value of the preceding block called the parent block, and the genesis block is the initial block in a blockchain that has no parent block (Zheng et al. 2018).

Figure 1.
How the blocks
are created and
the sequence of
continuation
(Zheng et al.
2018)



2.3 Evolution of Blockchain

Since its inception in 2009, blockchain has progressed through three stages: 1.0, 2.0, and 3.0 (Swan, 2015). Blockchain 1.0 is solely concerned with cryptocurrency trading. The "Internet of Money" is a new ecosystem that combines the functions of digital money transmission, remittance, and payment (Peters & Panayi, 2016). The currencies may have varied characteristics, such as being linked to a fiat currency or a commodity, but their purpose remains the same: they are used for digital property payments and transfers (Potekhina & Riumkin 2017).

Similar trading as 1.0 is included in Blockchain 2.0, but with a far broader range of financial applications. Derivatives, digital asset ownership, smart property, and other applications fall within this category. In the second generation of blockchain, a new form of an application called a "smart contract" was launched to broaden trading from just digital currency to a wide range of products (Swan 2015). Blockchain 3.0 broadens the scope of blockchain technology beyond financial and corporate applications and covers politics, architecture, culture, and science. Examples are blockchain-based cloud storage products, voting systems, attestation services, government administration, and the connected Internet of Things (Dai & Vasarhelyi 2017).

2.4 Applications of Blockchain

Blockchain technology has a wide range of uses including the paramount and remarkable blockchain application is Bitcoin (Frizzo-Barker et al. 2019). Bitcoin was the first decentralized cryptocurrency (Shehada & Shehada 2020). This part has specifically identified some of the most common blockchain applications in Finance and Accounting.

2.4.1 Blockchain in Finance and Accounting

Blockchain technologies have had a significant impact on traditional financial and corporate services (Nakamoto, 2009). Blockchain can be utilized in the financial sector to improve security, and efficiency, and cut costs in international transactions. The technology can be used to make payments, improve operational efficiency, and lower bank charges (Sahlin & Levenby 2018). It also believes that blockchain technology should be integrated into other parts of cybersecurity and accounting, including auditing and general accounting operations (Demirkan, Demirkan & McKee).

Lazanis (2015) was the first to articulate the prospect of traditional corporations using blockchain accounting. He emphasizes that if a corporation freely discloses its transactions on the blockchain, it eliminates the need for trust in any middleman, such as a bank or insurance provider. The triple entry accounting principle is the foundation of blockchain accounting (Grondahl 2020). Traditional double-entry accounting is not required as the blockchain technology allows recording both sides of a transaction at the same time in a shared book concurrently, instead of retaining it in separate accounting books (Kwilinski 2019). It has been identified that a blockchain-based accounting system by definition must allow shareholders, customers, creditors, and other stakeholders of a corporation to compile their own financial statements at any time and eliminates the need to rely on quarterly reports (Yermack 2017).

2.5 Audit Trial

Blockchain can be implemented in the audit trail to generate an audit trail automatically since every transaction in an organization will create real-time stamped blocks that are tied together, and it will store the history of all transactions in its ledger (Rechtman 2017). The phrase "audit trail" is used in both accounting and computing disciplines. It reflects the chronological order of events that occur within a company or on a computer server. It is imperative that the source of the date and time is accurate and secured (Quinn 2012). Therefore, an audit trial plays a major role as the main source of audit documentation. Processing references, data, documentation, significant transactions, user resource requests, and activity history should all be included in an adequate audit trail (Fragos et al. 2005). Organizations employing Blockchain can conduct ongoing internal audits of their operations, give an audit trail, and submit account analysis just at the press of a button (ALSaqa 2019, cited in Wunsche 2016).

2.6 Blockchain in Auditing

Financial audits can be time-consuming, costly, and exhausting, requiring manual system reviews, paper documentation, and validation from other sources. If Blockchain is to be used as an accounting platform, it must be auditable, and specialists must devise means to audit the system (Demirkan, Demirkan & McKee 2020). Auditing processes will be affected by blockchain in several ways. The transaction-level assertion will change, and certain major procedures will progress toward a more holistic, business integration approach (Pugna & Duțescu 2020). Blockchain generates an interlocking perpetual accounting record which has suggestions for continuous auditing (Bonson & Bednarova 2019). When blockchain is used, traditional double-entry accounting is not required as the blockchain technology allows the businesses to keep track of both sides of a transaction at the same time in a shared book concurrently, instead of retaining audited records of financial transactions in separate accounting books (Kwilinski 2019).

2.7 The Role of the Auditor

Auditors' roles may evolve dramatically from account review to co-development and consulting in the development of blockchain accounting systems. This relieves the audit profession of tedious and unnecessary activities while also increasing audit trust (Hambiralovic & Karlsson 2018). The use of a triple-entry blockchain accounting system could provide auditors with real-time access to the entire population of transactions (Dai & Vasarhelyi 2017). Blockchain could radically change the process of auditing and auditors no longer need to request and wait to obtain data and documents from third parties since the complete record of transactions is stored in blockchain (Liu et al. 2019). Human accountants' involvement in blockchain accounting could be considerably reduced, if not eliminated. According to the "Australian industry report," bookkeeping and auditing clerk jobs are the most likely to be automated by this technology (Lazanis 2017).

It may also bring the position of auditors considerably closer to that of management, as they would be developing such systems together. It may also eliminate some of the less pleasant tasks of auditors, such as questioning management and, in some cases, accusing them of unlawful behavior. By planning ahead of time, such situations will become less common, and the trust gap between auditors and management will be bridged (Hambiralovic & Karlsson 2018). With the blockchain, auditors are able to make choices and act independently in a local setting without having to deal directly with the client (Grondahl 2020). Instead of requiring the examined organization to manually retrieve documents, all information would be more easily accessible directly from the blockchain, reducing management's time-consuming audit preparatory work (Yu et al. 2018).

2.8 Audit Trail and Blockchain

Blockchain can be used to implement an audit trail since every transaction that takes place in an organization will create real-time-stamped blocks which are chained together creating the blockchain, and it will store all transaction history in its ledger, where it can automatically generate an audit trail (Rechtman 2017). Implementing blockchain technology creates an immutable record that will contain all transactions from the first time they entered the ledger. And if a transaction that is entered incorrectly needed to be corrected, the new modified transaction must cancel the historical transaction out when being entered (Vaidyanathan 2017).

The advantage of blockchain in audit trails is that all data from transactions in the ledger is secured and certified by the system, allowing auditors to trust the integrity of the data while validating the ledgers (Dai & Vasarhelyi 2017). Since blockchain transactions cannot be tampered with, they may minimize the cost of fraud prevention and detection, resulting in a more efficient audit process (Rechtman 2017). Many transactions are already authenticated because the chain is quality certified, and the manual reconciliation of accounting data, which is currently a time-consuming operation, may be automated. If all data is confirmed to be of high quality, it can be used in any way. This could point to a change in the way auditors work today. They analyze data that occurs on the blockchain rather than reviewing invoices (Sahlin & Levenby 2018).

In the existing audit approach transactions and accounts are only sampled for verification, which means that not all transactions and accounts are verified. These flaws can be addressed with blockchain technology. Blockchain creates a complete audit trail that allows a population of transactions rather than a sample of transactions to be evaluated (Smith 2018; Kokina et al. 2017). As more individuals learn about blockchain, their understanding of the technology grows, but few people understand how it works in practice (Sahlin & Levenby 2018). One of the reasons for this, according to Deloitte, is that blockchain is a complex system that requires time and effort to completely

comprehend. Those that grasp the technology and see how they may benefit from it exhibit a lot of enthusiasm, but they are few and far between (Sahlin & Levenby 2018). The perception of big four audit firms about the implementation of blockchain technology benefits the accounting profession (Haryanto & Sudaryati 2020). All of the Big Four audit firms have begun to create blockchain-based applications. KPMG began working on a blockchain in 2016 and teamed with IBM Watson to begin automating and optimizing audit processes and exams (Smith 2018). In 2014, PwC and Deloitte began developing blockchain applications. PwC is experimenting with various blockchain technologies and advising customers on how to use them. Deloitte is working on a new internal app. EY has teamed up with Accenture to try out editable blockchains. Each of the Big four appears to recognize blockchain's disruptive potential. To better respond to client needs, they are testing private, public, and permissioned blockchain solutions (Karajovic, Kim & Laskowski 2017).

Based on the above literature review, despite the growing number of publications, there are few formal research studies on blockchain-related audit trails. As well as there exists a gap which evidenced that in the Sri Lankan context there is a lack of research on blockchain in the audit trail. Therefore, this gives the opportunity to conduct research in the local context. This study will be able to fulfill the gap by contributing to the existing literature related to the implementation of blockchain technology in audit trails.

3. Research Method

The research design establishes a framework for data gathering. Exploratory research is conducted for a problem that has not been studied more clearly, intended to establish priorities, develop operational definitions, and improve the final research design (Shields & Rangarjan 2013). The goal of the exploratory research was not to produce conclusive evidence; rather, it was to gain a better understanding of the subject matter by increasing knowledge. The strategy to be used in this research is the exploratory research method. Because the overall objective of this research is not to provide a conclusion on how blockchain can replace audit trails. But through these findings, will be able to increase the insight into the use of blockchain technology in audit trails.

The key strategy of this study was to use a qualitative approach. Qualitative research is based on gathering information from personal experiences and expertise rather than numbers and statistics. As blockchain technology is still in its preliminary stages of development in accounting, it is vital to understand what has been accomplished to date and what will be accomplished in the future. Qualitative data was gathered through semi-structured interviews conducted with auditors at KPMG Sri Lanka.

This research is conducted by using auditors employed in KPMG, one of the largest four audit firms in Sri Lanka. The sample consisted of thirty individuals. The selected audit firm is KPMG which is a leading audit company that operates in more than 140 countries and territories, where it provides audit and assurance, accounting services, risk and financial advisory, risk management, tax and restructuring, and insolvency services. One reason for selecting this is that KPMG assesses blockchain technology as a major worldwide endeavour. Furthermore, since KPMG is one of the big four audit firms, they offer a more comprehensive perspective on the influence of blockchain technology on the auditing profession. The selected employees for the interview possessed knowledge of the audit process and blockchain technology provided an understanding of how audit trails are used in the audit process, as well as the development of blockchain technology and whether it will change the audit process in the future. This sample included ten managers, eight supervisors, and twelve audit senior who can represent on behalf of all staff in the firm. In this study, the unit of analysis is an individual who is engaged in the audit field and is taken to an interview to gather data.

3.1. Data Collection Methods and Analysis Strategies

Data from primary sources was gathered from semi-structured interviews conducted with auditors at KPMG Sri Lanka. It allows asking open-ended questions and offers the interviewee more opportunity to respond and use follow-up questions after the interview has been completed, and interviews are taken 30 to 60 minutes to complete. Interviews are conducted both online and physical modes for the convenience of both parties and for faster responses where it appropriates. This research mainly focuses on qualitative data analysis. The qualitative data are gathered mainly through key informant interviews. The verbatim statements of the respondents are gathered from interviews and converted into a written format to identify the codes to answer the research questions of the study. The collected data are entered, checked, edited, cleaned, coded, summarized, and organized as a stepwise process. After the data collection process, the data are analyzed to interpret the findings.

Semi-structured interviews are conducted in both form of online and physical, and all the interviews are recorded. Firstly, interview transcripts are prepared. Here, all the information attained from the respondents are noted in the paper. This phase involves familiarizing with data by listing the overall audio transcript. From this, the researcher expects to gain a clear idea about the data gathered and make notes on the data to highlight items potentially of interest. This involves reading the words actively, analytically, and critically and being guided to start thinking about what the data means.

Thereafter unnecessary data are deducted through three-time data deduction steps. The purpose of this step was to keep only the necessary and important information relevant to this study. Then prepare the final transcript. It includes all the important findings regarding the research questions. Next, all the findings are coding and categorized as relevant for the research. The awareness of auditors on blockchain technology is firstly categorized. Next issues with the current auditing process are identified. Then the improvements in audit trials with blockchain technology are categorized. Finally, several themes are identified and interpret the finding as to the results of the study. All the identified themes of the study are the main output of the investigation of awareness of implementing blockchain technology in audit trails among auditors in Sri Lanka.

4. Results

4.1 Audit Process

The audit process involves three phases such as planning, fieldwork, and finalization. When starting any audit engagement, usually have a planning discussion with the partner, engagement team, and other specialists involved in it. The objective of the audit, applicable policies, high-risk areas, and relevant audit procedures will be discussed and then prepare a basic audit program to follow. Next, fieldwork or the designed procedures for each of the captions are to be performed. Here, standard working papers are prepared and reviewed. After the fieldwork is completed, the audit report is drafted by providing an audit opinion on the financial statements of the client.

Initially, the client is asked to provide all transactions that occurred during a specific time period through a document called Pending By Client (PBC). There are too many ways to collect data from the client. Usually, KPMG obtains the data manually, or the client extracted it from their system and provides it in excel form, or if the clients are using any accounting software such as SAP, or ERP they provide access to their database. When these transactions are provided to KPMG, the first thing they must do is double-check that they are correct. They must undertake a data quality survey to guarantee that the data is of high quality.

4.2 Importance of Audit Trial

An audit trail could be considered the backbone of an audit. Well-managed audit trails are significant indicators of good internal corporate controls and aid firms in

understanding the state of their business in the past and present. Visualizations in the top audit trail systems allow examining the state of a firm at a look. These audit trails are typically required by organizations to comply with industry standards or government legislation.

Automated electronic logs have replaced manual audit trails, making historical data more accurate, accessible, and usable. Upper management, concerned departments, and IT staff must all commit from the top down for successful audit trials. Automated audit logs can be used to uncover problems that signal system installation issues, operational issues, odd or suspicious actions, or system and operator faults through real-time monitoring. The faster a suspicious change or addition to data is red flagged, the better the response to counteract harmful consequences such as cyber-threats, security breaches, data corruption, or information abuse.

When starting an investigation, the audit trail serves as a baseline for analysis or auditing. Depending on the company, the purpose of an audit trail might take numerous forms: the audit trail can be used for reconciliation, historical reports, future budget planning, tax or other audit compliance, crime investigation, risk management, etc. An audit trail is commonly used when the accuracy of an item needs to be checked. Accountants employ audit trails to ensure that companies are held accountable for their actions. There would be no reason to believe in the integrity of a company's financial reports if audit trails were not used to confirm financial facts. In this approach, audit trails not only protect consumers from false reporting but also contribute to economic stability. Audit trails also compel businesses to keep a full and up-to-date audit log and trail system, reducing fraud and other forms of financial crime.

4.3 Issues with Current Audit Practice

There are lots of barriers to the current auditing process. The main issue is difficulty in obtaining information on time for the engagement from the client, sometimes they are not providing the proper data along with sufficient and appropriate supporting documents. Most of the clients are not spending much time on the documentation part, as such tracking down the information is always time-consuming.

There is a lack of adequate knowledge and competence of the staff to perform an efficient audit. Technical and arithmetic errors also can occur when performing audit procedures. Occasionally the technologies are not enough to perform the standard workings that are expected to perform. Moreover, there are lots of interests coming from different parties, which will not make auditors work independently sometimes. Even though it is theoretically feasible to trace a transaction back to its source document, doing it in practice can be extremely time-consuming and complicated. Today's computer-based accounting systems are dependable, but they are also a little old-fashioned, complicated, and tricky. Following a transaction, all the way to the source document would be quite challenging in many circumstances when large quantities of transactions are conducted within these systems.

Also, during the peak times, the time allocated for each audit is limited to conducting audits that may not be sufficient to identify certain audit issues or the accounting issues reported in the financial statement. There are lots of audits including listed companies as well as small companies. To perform a quality audit, there should be sufficient hours. Further, auditors use sampling in auditing and arrive at a conclusion on the total population based on the audit procedures performed on a sample. Therefore, a sampling risk always exists which can lead to an incorrect audit opinion. In larger audits, they use so much of samples together, and storing those samples is sort of challenging part, because in e-audit, where KPMG does all the auditing procedures and is a systemized one where auditors can document all the samples, but there is a limit to document and if that exceeds the limit, files get loaded.

4.4 Blockchain in Sri Lanka

For the time being, blockchain is still in its early stages of development, with society debating the potential benefits blockchain could provide. However, very little has happened in practice, and there has yet to be a real-world example introduced to the Sri Lankan market. The market for bitcoin solutions is attracting the most attention in Sri Lanka. But the Central Bank of Sri Lanka has not yet approved cryptocurrencies for use in transactions; therefore, individuals who use them should be aware of the hazards. Sri Lanka's cabinet of ministers has formed a committee to investigate the country's usage of blockchain and cryptocurrency. In Sri Lanka, people are aware of bitcoin, cryptocurrencies, and related topics for the last couple of years only. But in other countries, they do have the tools, studies, and courses to follow on the blockchain. Compared to the global context, Sri Lanka is far behind in adopting blockchain technology.

4.5 Blockchain in Audit Firm

Today, digitization is at the forefront of development, and KPMG believes blockchain can play a role. Global KPMG's value-add approach combines financial management, digital transformation, and industry expertise to offer organizations thorough blockchain guidance. KPMG Sri Lanka is not currently developing a blockchain solution for its own needs. On the day when their clients have blockchain systems in place, KPMG will be able to design a solution and use it. Before that, they see little sense in having a blockchain solution for auditing services if their clients continue to use traditional accounting systems.

KPMG is in the middle of technology. So far it has never come across blockchain used in audit trails. But in terms of storage, KPMG introduced a globally shared One Drive system. Even if one particular story is affected, would be able to recover the information from another location. Since the blockchain is a new sort of technology, they may apply their previous knowledge while continuing to learn new things about it. Employees in various areas have varying levels of knowledge, which when combined, may enable them to provide the best possible advice to their consumers regarding blockchain in near future.

4.6 Interest from Clients

Relatively, there is a limited talk about blockchain. As more individuals learn about blockchain, their awareness of the technology grows recently, but very few people understand how it works in practice. One of the reasons for this may be that blockchain is a complex system that requires more time and effort to properly comprehend. Those that grasp the technology and see how they may benefit from it exhibit a lot of enthusiasm, but they are few and far between. The focus in auditing is primarily on digitization and automation, of which blockchain is a part. The debates centre on how to automate specific procedures; this can be viewed as an evolution from where it might start with.

The stages of development of blockchain may be determined by KPMG's clients; in auditing, they must relate to their clients by looking at the development of the technology and where it is headed; in consulting, they must be at the forefront to know what advice organizations require in their future blockchain implementations.

4.7 Prospects of Blockchain Application

Blockchain has the potential to be used in a variety of fields, including auditing. More difficulties were faced during the COVID-19 pandemic in visiting client places physically, some clients were able to manage it online. Once the blockchain is implemented in the client places auditors can easily review the information online. Accountants could use blockchain to get clarity over their businesses' available resources and liabilities, freeing up resources to focus on planning and valuation rather

than recordkeeping. In addition, blockchain has the potential to eliminate the need for bookkeeping and reconciliation. This could jeopardize accountants' efforts in particular areas while strengthening those who focus on creating value elsewhere.

However, it can be implemented in several other areas as well. Such as smart contracts, using blockchain in supply chain management, government records management, voting system, etc.

4.8 Improvements in Audit Process with Blockchain Implemented Audit Trail

Blockchain can streamline auditors' work in the auditing process. The efficiency of their work will be impacted in the future if blockchain is implemented in the auditing process. More importantly, the auditors can provide an absolute assurance instead of providing a reasonable assurance since there is an ability to consider the whole population in carrying out audit procedures.

Many transactions are already validated because the chain is quality assured, which removes a major portion of the manual work for an auditor. Instead of doing a quality audit of all data received from clients, they will have access to transactions via the blockchain, which may be seen as an external entity that has confirmed all transactions. As a result, all data has been verified, and data requests and data quality surveys are no longer required. Instead of focusing on the verification, they may concentrate on what the transaction facts mean.

Furthermore, once time series data has been generated in the blockchain, it cannot be erased or manipulated. This feature ensures the reliability of data and traceability to a large extent. It can also achieve complete supervision with this function. As a result, blockchain data is extremely open and transparent. Auditors may have complete confidence in this financial data, which allows them to eliminate many superfluous audit procedures and cut the audit time in half, considerably decreasing the amount of manpower and resources needed to ensure the accuracy of financial data.

If some or all the transactions that underpin a company's financial status are visible on blockchains, doing confirmations of that status would be less necessary. This idea would result in a significant shift in the way audits are conducted. When integrated with suitable data analytics, a blockchain system could assist with the transactional level claims necessary in an audit, allowing the auditor's expertise to be better spent on higher-level questions. In addition, it saves lots of time and cost in terms of storage and handling costs because KPMG auditors are liable to maintain information for at least a minimum of five to seven years, if the blockchain is implemented, the data could be stored in a very safe way.

4.9 Blockchain against Fraud

There will be no special protection from blockchain technology against fraud, but it can be reduced to some considerable extent. Blockchain can verify a payment, but it cannot guarantee the transaction's quality. Even with blockchain technology people can manipulate the system, transactions can be generated with fraudulent supporting documents. Therefore, proper authorizations and the proper process should be there to make sure that there will be no fraudulent activities involved.

Blockchain might be a way to improve fraud investigation. Today, fraud investigations are carried out by examining a huge number of transactions. This is accomplished by looking for trends and anomalous transactions, such as those that occur frequently. In the blockchain, it creates a blockchain program to detect anomalous transactions. By boosting fraud detection, blockchain has the potential to reverse the entire fraud investigation method in auditing. It can also be used to identify users who engage in odd behaviour.

4.10 Implementation of Blockchain in Audit Trail

Although blockchain has been mentioned as a prospective technology that will have an impact on auditing in the future, it is currently a relatively new phenomenon

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with limited knowledge of the technology. More technical aspects are included in today's technology systems than in the past. There is a big challenge in implementing such a complex system in the audit trail. This will require more knowledge from a wider range of employees than earlier, for example, auditors need knowledge of the blockchain technology to conduct their work, which places a greater emphasis on knowledge about IT than before.

Small and medium entities, most probably do not have a separate IT department; they will have a maximum of one or two employees who handle the hardware and software problems. But to execute a blockchain system there should be a separate IT department with a professional team. Therefore, it would be much more difficult for small and medium entities to adopt this new technology, but larger businesses have the financial as well as resource capacity to implement blockchain in their audit trials.

4.11 Challenges with Blockchain

The complexity of blockchain technology makes it too difficult for a layperson to comprehend and understand its benefits. Before diving into this ground-breaking application, one must first read it and grasp the concepts of encryption and distributed ledger. Blockchain is a cutting-edge technology that still requires a lot of technological breakthroughs. Therefore, it will take time to completely alter the technological sector. While audit trails give financial information that is critical to the efficient operation of a corporation, maintaining and executing the practice is difficult. The time and money required to maintain a suitably compliant audit log, especially when the audit log is automated, is the most significant difficulty that organizations face. As the logs grow in size, they may become difficult to navigate, posing storage cost concerns. Access may be granted in an overly broad manner, jeopardizing the integrity of data.

There is a question concerning cooperation because collaboration is a huge benefit of blockchain. Organizations are accustomed to thinking of themselves as early adopters in the market who want to be the first to implement a new technical solution. It cannot be used if only one of the participants in a business transaction uses it; blockchain must be used by all parties involved in the business process. To deploy blockchain as a solution in their businesses, a large number of firms would have to work together at the same time.

4.12 Future Implications of Blockchain

On the surface, blockchain appears to have significant consequences for auditing. IT will have a significant impact on auditing in the future; it is expected that when automation becomes a larger part of an organization's daily operations, most internal controls will become obsolete. Because transactions are already validated, blockchain can provide secure transactions in society, which will simplify auditing in the future.

The reduced requirement for reconciliation and dispute resolution, combined with enhanced confidence about rights and duties, will allow for a greater focus on how to account for and assess transactions, as well as an expansion of what can be accounted for. Many present accounting department operations can be improved using blockchain and other modern technologies like data analytics and machine learning, which would improve the accounting function's efficiency and value.

The range of abilities represented in accounting will vary as a result of the aforementioned. Some tasks, like reconciliations and provenance assurance, will be decreased or eliminated, while others, such as technology, consulting services, and other value-added activities, will grow.

In brief, there is a relative lack of awareness about blockchain technology among auditors in general, which could be a roadblock to blockchain implementation in audit trials in Sri Lanka. Since blockchain has demonstrated potential as a technology that

can transform auditing processes, it is not unreasonable to believe that it could be used to build an audit trail, although more study is needed in this sector to be successful. Regardless of where blockchain and audit trails go in the future, the audit profession will undoubtedly be impacted. However, it is yet too early to predict how.

5. Conclusion, Implication and Limitation

The purpose of this study was to investigate the awareness of implementing blockchain technology in audit trails among the auditors in Sri Lanka. The findings suggest that blockchain's impact on audit trails is still in its early stages of development. Previous research on audit trails and blockchain has been very limited. This study contributes to existing research with some findings that could help to improve the process of executing blockchain in audit trials.

This research was to undertake an exploratory study that would help people learn more about audit trails and blockchain in the future. The empirical data was gathered through a semi-structured interview with auditors at KPMG Sri Lanka, one of the big four audit firms. It contributed by facilitating a discussion on how they currently deal with audit trails and what challenges they may face with current audit practice. There were suggestions for blockchain development as well as opportunities and issues with the technology.

Auditors check a company's financial statements by selecting a sample of transactions from the audit trail. They may disregard other incomplete transactions within the audit trail. KPMG believes that blockchain technology has a lot of potential, not only in auditing but also in other fields. All transactions in the audit trail would be checked in real-time if blockchain technology was used. Instead of checking transactions and taking samples, the auditors might concentrate on analyzing the data. This would increase the efficiency of the auditors, especially resulting in cost savings. The main challenge, according to auditors at KPMG, is that blockchain is a sophisticated system that demands a high degree of knowledge and competence, which society does not possess as of now.

This study, first and foremost, contributes to the academic community by filling a gap in the literature. Most audit trail research was done a long time ago; this thesis provides a current starting point for understanding how audit trails are used by organizations today and what issues or difficulties they may face with current audit practice. Previous blockchain research and academic papers have largely focused on the technological underpinnings and topics such as cryptocurrency and bitcoin. However, this thesis takes a different look. This study proposes blockchain technology to be used when auditors build audit trails. This is, as far as the author of this study is aware, the first time this research has been done in Sri Lanka. Therefore, this research will serve as a foundation for future research.

From one large audit firm's perspective, awareness concerning the implementation of blockchain technology in audit trials was only obtained from conducting semi-structured interviews with auditors. This analysis has taken a restricted perspective by relying just on KPMG Sri Lanka. If the perspectives and information of various auditing firms had been included, the study would have had a lot more to explore and analyze. Since blockchain technology itself is a new and upcoming technology, there are restrictions on the resources and materials regarding the technology in the Sri Lankan context. Therefore, the application could be limited in the industry.

It is recommended to create a prototype of how blockchain may be used to construct audit trails in practice, to make a more comprehensive study. To enhance the conclusion of this study, more investigation into any difficulties or obstacles with audit trails and the current audit procedure is required. Since blockchain is a new and rapidly evolving technology, a general study into the role of blockchain in the accounting and auditing profession, as well as research into blockchain applications in more specific sectors, is required. Furthermore, government contribution to the development of

blockchain in the commercial sector could be explored. Also, searching for the factors affecting the use of blockchain in the field of accounting and auditing is vital.

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