

An Empirical Study on the Impact of Blockchain on Accounting and Auditing Systems



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Abstract- This article highlights mainly on the area i.e., how the blockchain technology has impacted on the process of accounting and auditing, and certain areas where the blockchain technology can be applied to make the existing ERP more robust. Blockchain brings the trust between the parties to a reasonable consensus in a business process by means of decentralized ledger provided to each party with a single shared source of truth. Lastly, blockchain technology is helping the auditors to find the trails of the event in a more cost effective and efficient way. By using the sample study of accounting professionals, experts and users it has been observed that.

Keywords- blockchain technology; triple entry accounting; blockchain accounting and auditing

I INTRODUCTION

Blockchain technology is a true wonder in the era of latest technology. Blockchain can be defined as a shared, non- changeable ledger that facilitates the transactions to be gathered into blocks. The transactions are recorded cryptographically as blocks in a chronological order and are linked like a chain. Blockchain is decentralized which means it does not have a single owner.

Blockchain is known as the underlying technology for cryptocurrencies like Bitcoin, it has emerged as one of the most fascinating technology after internet. With the advancement of

technology and arrival of internet, accountants and auditors are entering into an exciting and fascinating digital world comprising of Blockchain Technology, Artificial Intelligence, Cloud Computing, etc.

The major advantage of blockchain in the auditing profession is reducing errors and frauds in transactions relating to assets, liabilities, revenue and expenditure as in a blockchain environment it provides a secured and transparent network. Procedures like reconciliation, cross checking of bank balances, etc. will no longer be required as data can be verified by getting access to the shared network.

Blockchain enables us to understand the exact time when the data was entered or modified. This functionality will stop carrying out back dated transactions. Transactions entered through blockchain will facilitate traceability and easy retrieval in a cost effective manner which is much more complex in physical records. This will make it convenient for the Auditors to carry out the audit work. Auditors will be checking more on data security and system controls which will ensure that financial statements reflect a “True and Fair” view. Hence, very little audit work will be required to be done. Moreover, accounting records can be kept confidential and will be tamper proof.

Blockchain Technology can probably be said as a shift from Double Entry System to Triple Entry System of Accounting. The Double Entry System of accounting was developed by Luca Paciola in 1494 is based on the dual aspect concept of accounting which involves two accounts which record both the debit and credit. Whereas, Triple Entry System of accounting was developed by Yuji Ijri in 1986. It is an upgrade to the traditional double entry system. In this a third component is added to the debit and credit system. In this system of Accounting, all accounting entries are cryptographically sealed by a third party. Thus, it works as a prevention towards frauds and manipulations.

II. REVIEW OF LITERATURE

1. **C Vijai, SM Suryalakshmi, D Joyce (2019)**¹They did research on blockchain technology and Modern Ledgers Through Blockchain Accounting. In this paper they discussed Blockchain technology in accounting and Distributed ledger technology (DLT), Triple-Entry Accounting and the Benefits of Blockchain based accounting. The main highlight of this

paper is to explain an overview of the current Blockchain market size, major companies using Blockchain technology, and core components of Blockchain.

2. **Manlu Liu, Kean Liu (2019)**²They made a study on how Blockchain technology will change the process of Accounting and Auditing. In the article it basically introduced two types (i.e., Permissionless and permissioned) of blockchain to auditing and elaborate on opportunities and challenges of the two types of blockchain to auditors. It concluded by making specific recommendations for auditors to adapt, adjust, and elevate themselves to the role of strategic partners in blockchain implementation.
3. **Hawlistchek et al., Benedick Nothesian, Timm Teubner (2018)**³ In this paper it discussed that blockchain technology is decentralized storage of distributed database that comprise of similar data that are linked through a sequence of blocks that are secured by cryptography, it prevents any kind of alterations and insertions of a new block between two existing blocks.
4. **CMA Guruprasad V (2021)**^{From} his viewpoint it can be concluded that blockchain technology plays a major role for management accountants. From convincing top management to maintaining cost accounting records, blockchain has played a significant role by reducing the time of auditors to audit cost records and efforts made for reconciliation.
5. **CMA Ranjan Gunjal(2021)**⁵In this paper it focused on the Fourth industrial Revolution popularly referred as “Industry 4.0 “. involves innovations through digital technologies like artificial intelligence, internet of things, Big data and blockchain.

III. OBJECTIVES

1. To know about the concept of Blockchain on accounting and auditing.
2. To know about the impact of Blockchain on accounting and auditing in the corporate world.
3. To know and analyze the perception of accounting professionals about Blockchain accounting and auditing.

IV. METHODOLOGY

Research Design: -The aim of the project is to understand the impact of Blockchain on accounting and auditing.

- Research Type: - The data for this project are collected from both primary as well as secondary Sources.
- Sample Size: - 60
- Sample Selection Process-Convenient sampling process.
- Data Source: Primary data are collected through a structured questionnaire containing 15 questions and administered to respondents. Secondary data are collected through several books, journals and relevant electronic media.
- Data Collection Technique: - Through a survey method questionnaire and searching data through Internet surfing and books.
- Survey Period: - As the survey is a combination of both primary and secondary data so the data are collected from 4 years (2018-2021). The primary data are collected from the Date of topic selection i.e. April 2022 to finish the project i.e. September 2022 which is 5 months.
- Data Analysis and Presentation Technique:-For the analysis of the paper the help of various pie charts and bar charts are taken.

V. LIMITATIONS OF THE STUDY

One of the most important limitations of the study is lack of respondents to the questionnaire. Most of the respondents answered the questions without understanding the meaning of the questions as the knowledge of the subject matter was limited. Some of the respondents also gave false answers in order to make the answers more presentable.

VI. ANALYSIS AND FINDINGS

Analysis of the survey is described in the following table-1 with the percentage of each response option.

TABLE- I RESPONSE OPTION

SL.N O	Questions	Option A	%	Option B	%	Option C	%	Option D	%
1	Are you aware of the concept of Blockchain?	Yes	85	No	15				

2	Do you Know how Blockchain technology works?	Yes	71.7	No	28.3				
3	How do you think Blockchain affects the practice of Accounting & Auditing? State your opinion	It will Reduce Paper Work	30	Will help the auditor to find the trail of events in a most cost effective & efficient way	40	It will Reduce Unauthorized alterations in accountin g Practices	10.5	Proce ss will be fast & Reliab le	19.5
4	Will Blockchain improve the Future of Accounting?	Yes, can improve	63.3	May or may not improve	25	Partially improve	5	Highl y impro ve	6.7
5	Are you aware of the Triple Entry system of Accounting ?	Aware	43.3	Partially aware	26.7	Not aware	28.3	Fully Awar e	1.7
6	Do you think blockchain increases the efficiency & security of data?	yes	63.3	No	3.4	May be	25	Not sure	8.3
7	According to you, what are the biggest challenges in blockchain accounting?	Lack of scalability	15	Lack of interoperabi lity	13.3	complexit y	25	All of these	46.7

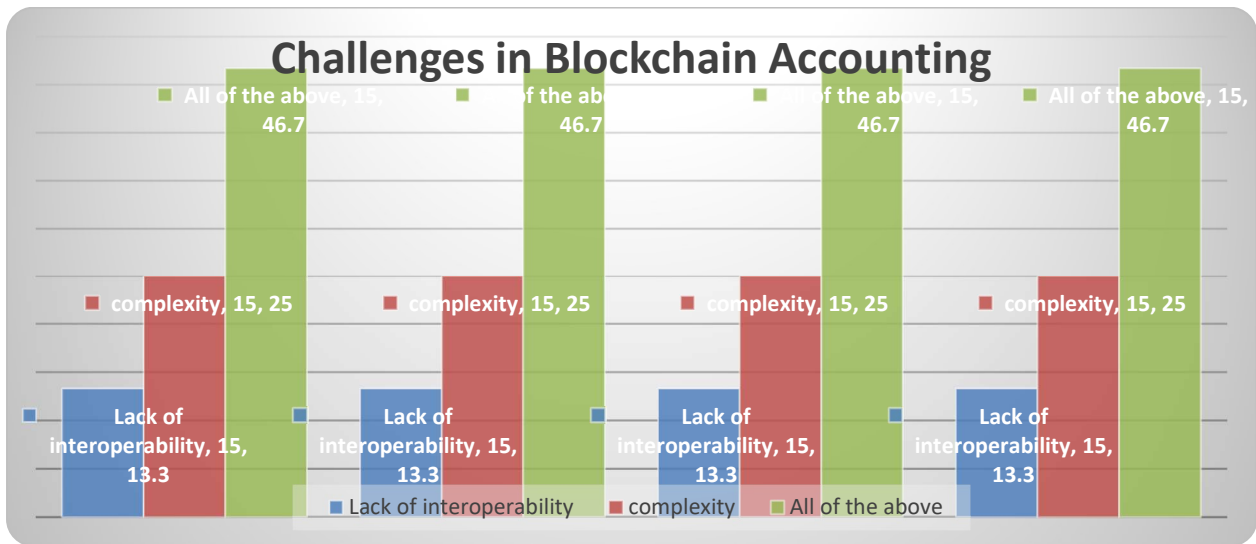
8	Do you think Blockchain is cost effective?	Yes	78.3	No	21.7				
9	Do you think Triple entry accounting will Reduce dependency on Auditors?	Yes, can reduce	43.3	Can, partially reduce	40	Cant reduce	13.3	Can highly reduce	3.4
10	Do you feel BlockchainTechnology has made the Auditing Practice more convenient?	Agree	56.7	Strongly Agree	6.7	Partially Agree	16.7	Neut ral	20
11	Will Blockchain technology replace accountants & Auditors ?	Yes, can replace	10	May replace	45	No will not replace	45		
12	Though Blockchain technology promises security for data, do you think there is threat to confidentiality	Yes, there can be issues relating to confidentiality.	38.3	No, there can't be any threat to confidentiality of data.	23.3	May or may not be	28.3	Don't know	10
13	What do you think will Blockchain	speed	10	Transparen cy	25	Decentrali zed ledger	10	All of the	55

	impact the finance industry?							Above	
14	Will Blockchain improve the future of Accounting and Auditing?	Yes, can improve	58.3	Partially improve	8.3	May or may not improve	26.7	Highly improve	6.7
15	What do you think about the Traditional way of accounting or the modern way of accounting which is more convenient?	Traditional	11.7	Modern	88.3				

Source: Primary Data

Some of these findings are shown with the help of column charts & pie charts.

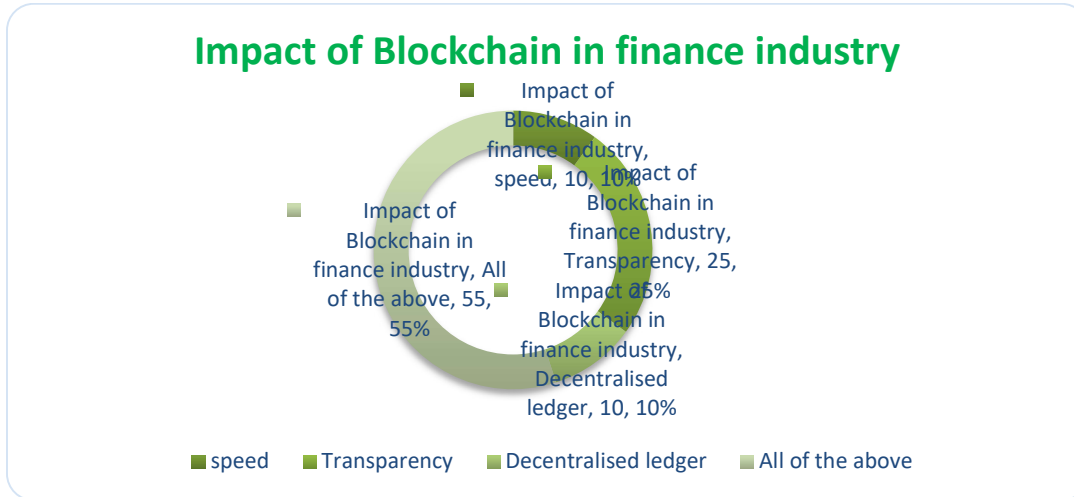
Chart-1



Source: Primary Data

Findings: From the above table it can be interpreted that the biggest challenge in Blockchain Accounting is Lack of scalability, Lack of interoperability, Complexity.

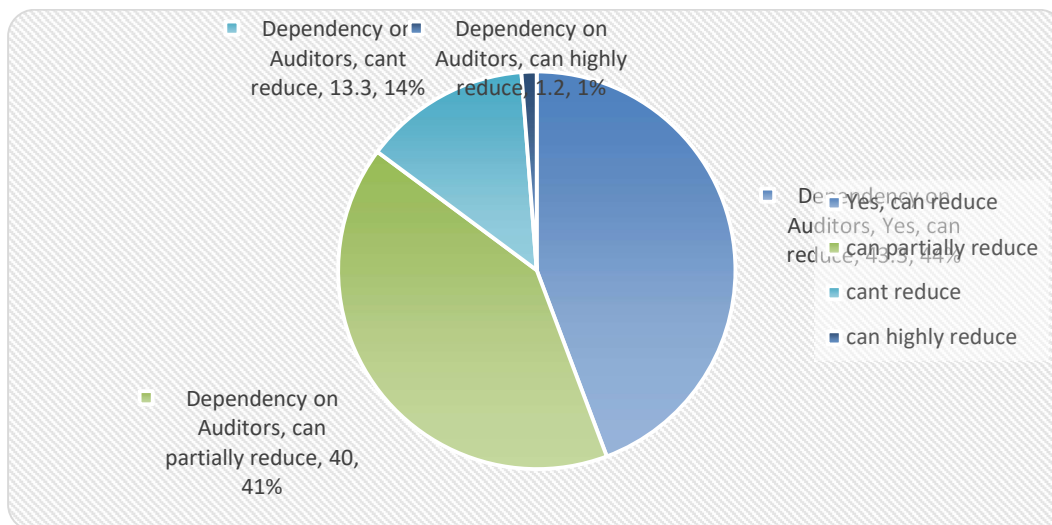
Chart- 2



Source: Primary Data

Findings: From the above chart it seems that about 55% of the respondents think that Blockchain impact in the Finance industry will result in speed, transparency, decentralized ledger. Next 25% believe that it will only result in transparency, the remaining 20% believe it will impact in Decentralized ledger and speed.

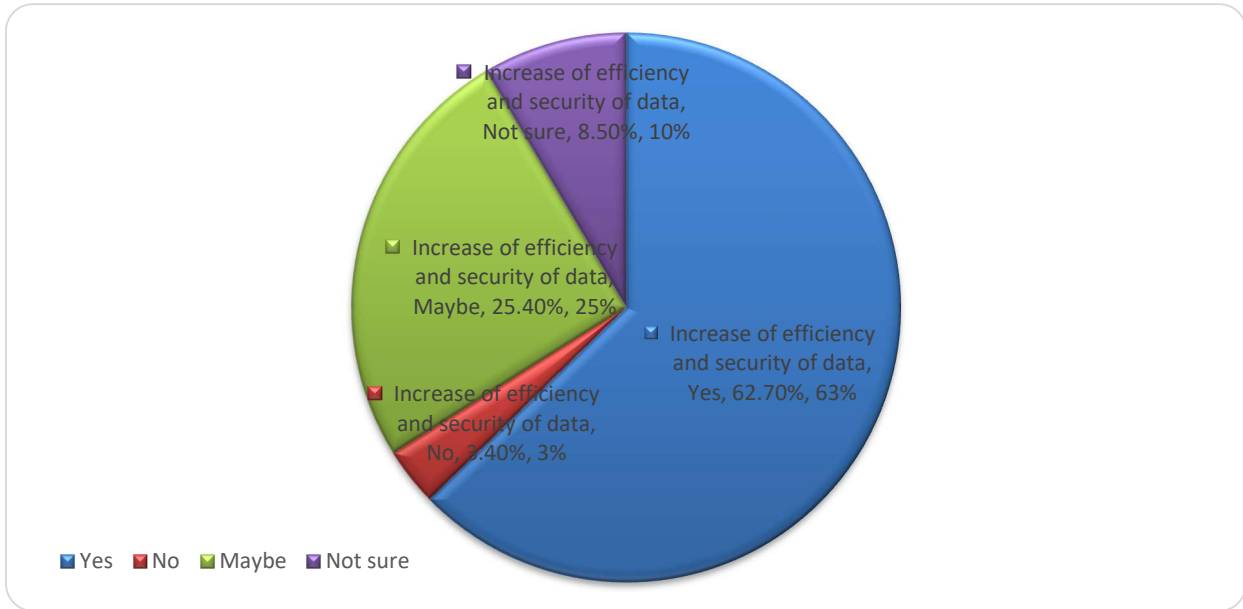
Chart- 3



Source: Primary Data

Findings: From the above chart it seems that 44% of the respondents think that Triple Entry Accounting reduces dependency on Auditors, 41% of the respondents think it will partially reduce the dependency, rest 14% think that it can't reduce, Rest 1% think it will highly reduce the dependency.

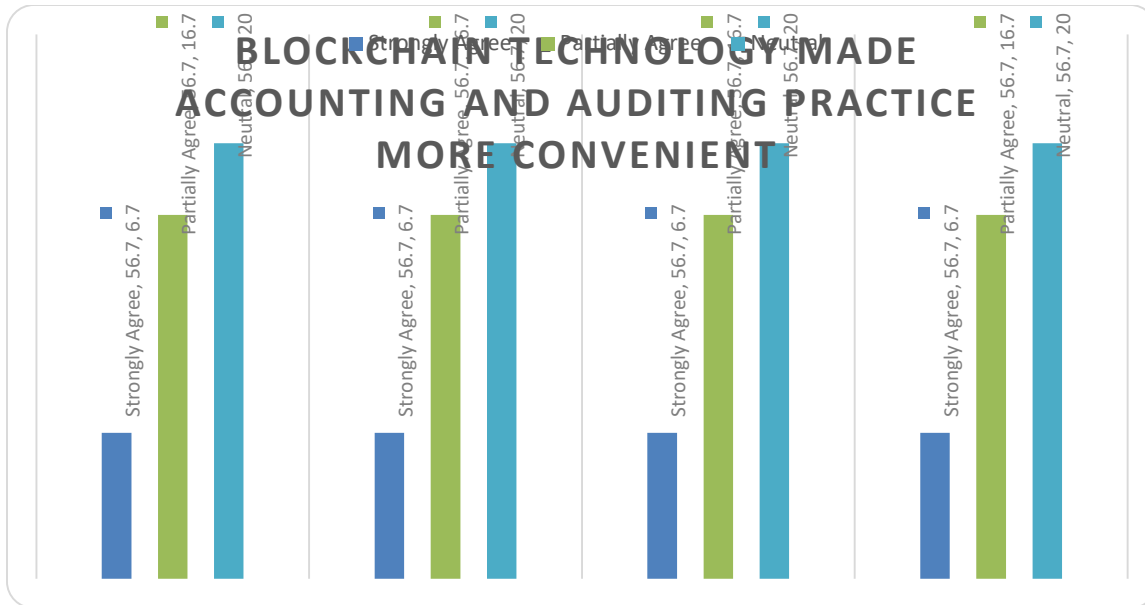
Chart-4



Source: Primary Data

Findings: From the above chart it is seen that about 63% of the respondents think that Blockchain technology increases the efficiency and security of data, rest 25%,9% are not really sure.

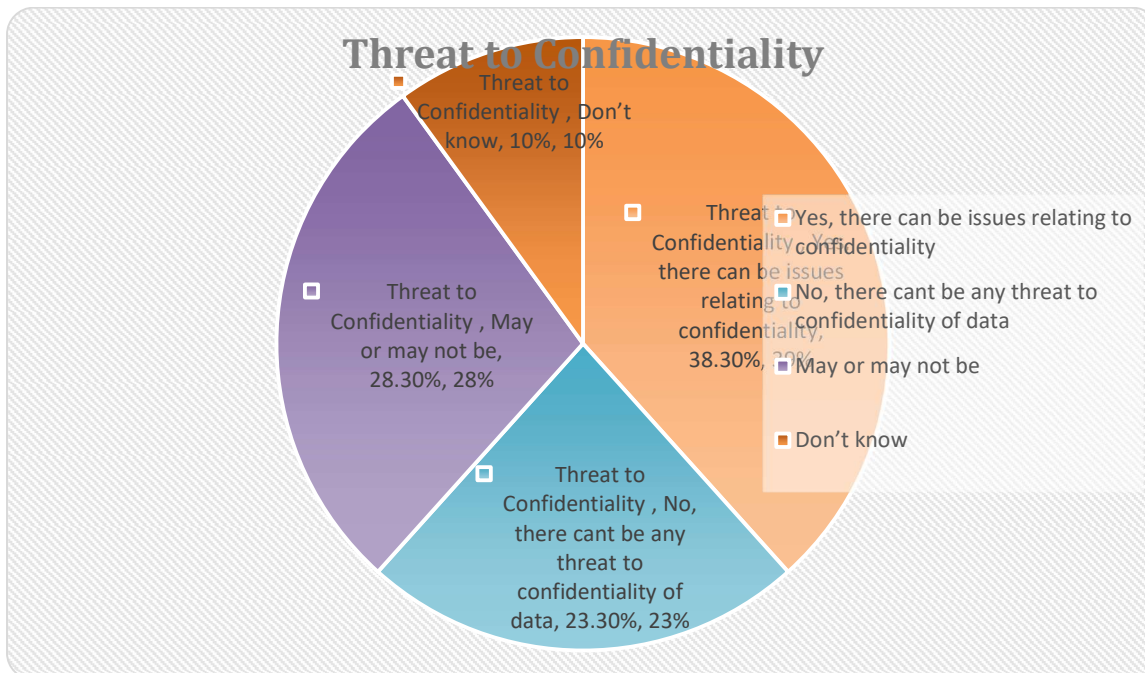
Chart-5



Source: Primary Data

Findings: From the above table it is seen that about 56.7% of the respondents agree with the fact that Blockchain Technology has made the practice of accounting & Auditing more easier, next 20% are neutral about this, next 16.7% Partially agree with this fact, Rest 6.7% strongly Agree with this fact.

Chart-6



Source: Primary data

Findings: From the above chart it can be concluded that about 38.3% of the respondents opines that there can be issues relating to confidentiality, Next 28.3% think that there may or may not be issues relating to confidentiality, Next 23.3% believes that there cannot be any threat to confidentiality, Rest 10% don't know about this.

Chi Square Testing

1.H₀ : There is a significant association between occupation and views on improvement of the future of accounting due to blockchain.

P value < 0.05 reject H₀

P value > 0.05 accept H₀

Observed

Occupation	Male	Female	Total
C.A.	7	5	12
Accountant	13	7	20
Business	4	6	10
Teacher	7	<u>11</u>	18
Total	31	29	60

Expected

Occupation	Male	Female	Total
C.A.	6.2	5.8	12
Accountant	10.33	9.67	20
Business	5.17	4.83	10
Teacher	9.3	8.7	18
Total	31	29	60

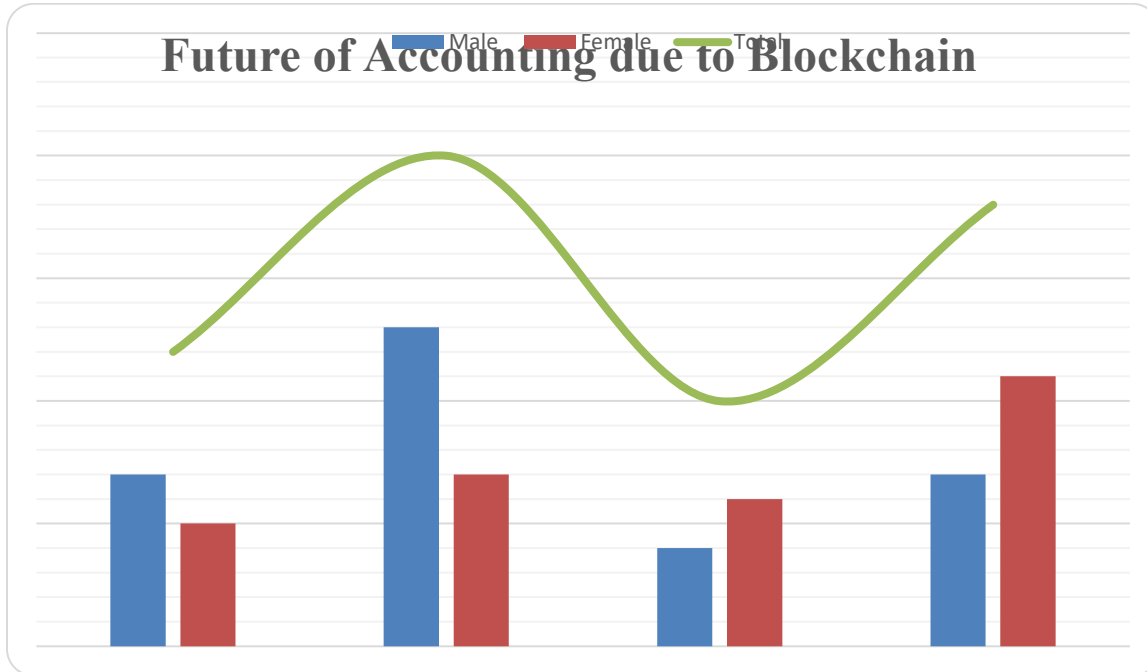
X² Value

P value- 0.339475723

Chi square value- 0.952440942

Since p value is more than 0.05 therefore there is significant association between occupation and views on improvement of the future of accounting due to Blockchain.

Chart-7



Source: Primary data

Findings: From the above chart it is seen that there is significant association between occupation and views on improvement of the future of accounting due to blockchain.

2. H_0 : There is a significant association between Blockchain and impact on the finance Industry.

P value < 0.05 **reject H_0**

P value > 0.05 **accept H_0**

Occupation	Observed				Total
	Transparency	ledger	Speed	Decentralized	
C.A.	5	7	8		20
Accountant	3	5	6		14
Business	5	3	7		15
Teacher	2	3	6		11
Total	15	18	27		60

Occupation	Expected			Total
	Transparenc y	Decentralized ledger	Speed	
C.A.	5	6	9	20
Accountant	3.5	4.2	6.3	14
Business	3.75	4.5	6.75	15
Teacher	2.75	3.3	4.95	11
Total	15	18	27	60

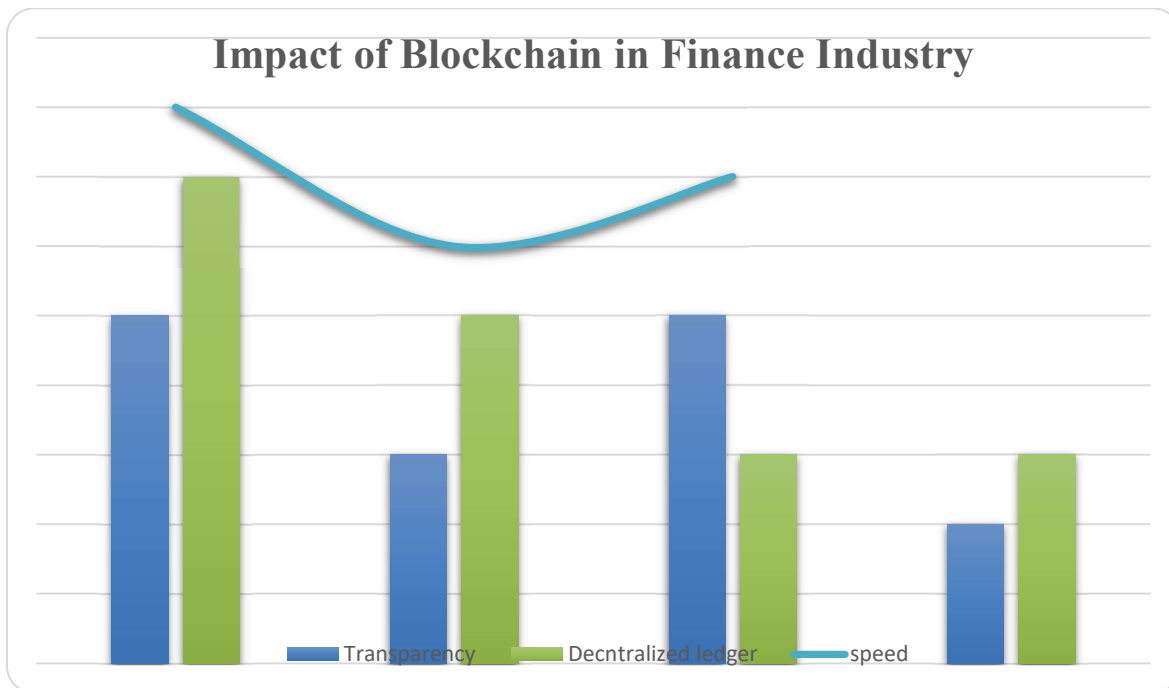
X² Value

P Value- 0.928980542

Chi square value- 0.988161772

Since p value is more than 0.05 therefore there is a significant association between Blockchain and impact on the finance industry.

Chart-8



Source: Primary Data

Findings: From the above chart it is clearly seen that there is significant association between blockchain and impact on the finance industry from the view point of respondents.

3.H₀: There is a significant association between gender and awareness about blockchain.

P value < 0.05 **reject H₀**

P value > 0.05 **accept H₀**

Observed

Gender	No	Yes	Total
Female	5	24	29
Male	4	27	31
Total	9	51	60

Expected

Gender	No	Yes	Total
Female	4.35	24.65	29
Male	4.65	26.35	31
Total	9	51	60

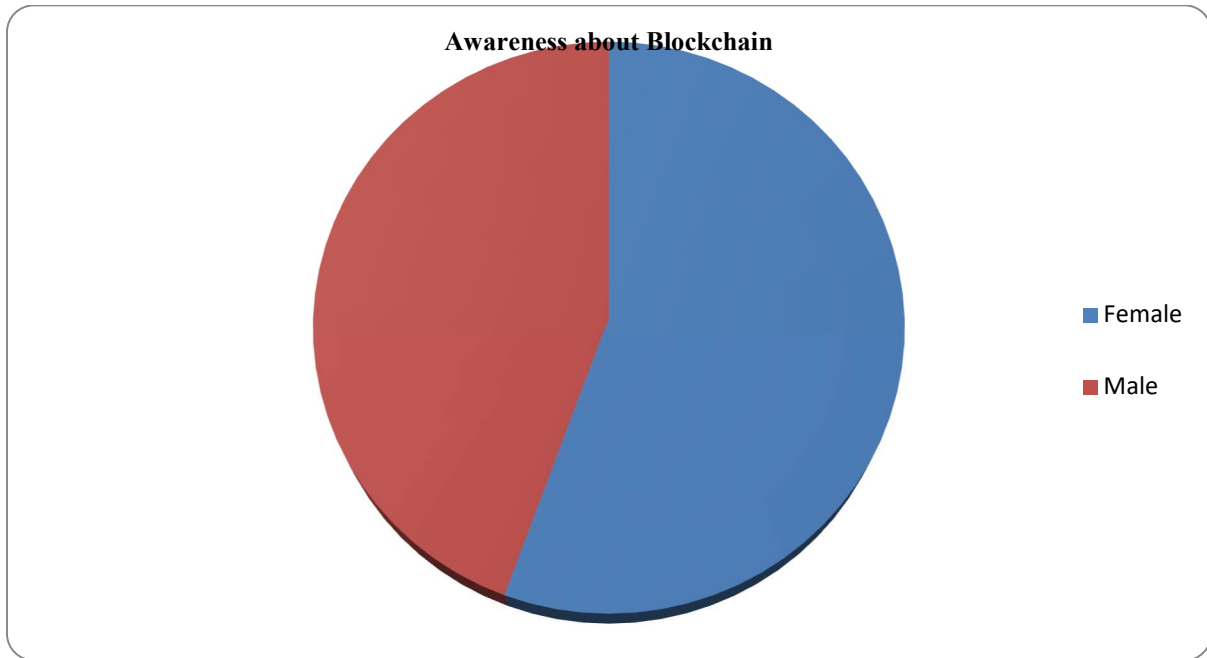
X² value

P value- 0.638157

Chi square value- 0.424379

Since p value is more than 0.05 therefore there is significant association between gender and awareness about blockchain.

Chart-9



Source: Primary Data

Findings: From the above chart it is clearly seen that there is significant association between gender and awareness about blockchain.

4. H_0 : There is significant association between occupation and views regarding a more convenient approach to accounting.

P value < 0.05 **reject H_0**

P value > 0.05 **accept H_0**

Observed

Occupation	Modern	Traditional	Total
C.A.	20	1	21
Accountant	12	2	14
Business	12	2	14
Teacher	9	2	11
Total	53	7	60

Expected

Occupation	Modern	Traditional	Total
C.A.	18.55	2.45	21
Accountant	12.36667	1.633333333	14
Business	12.36667	1.633333333	14
Teacher	9.716667	1.283333333	11
Total	53	7	60

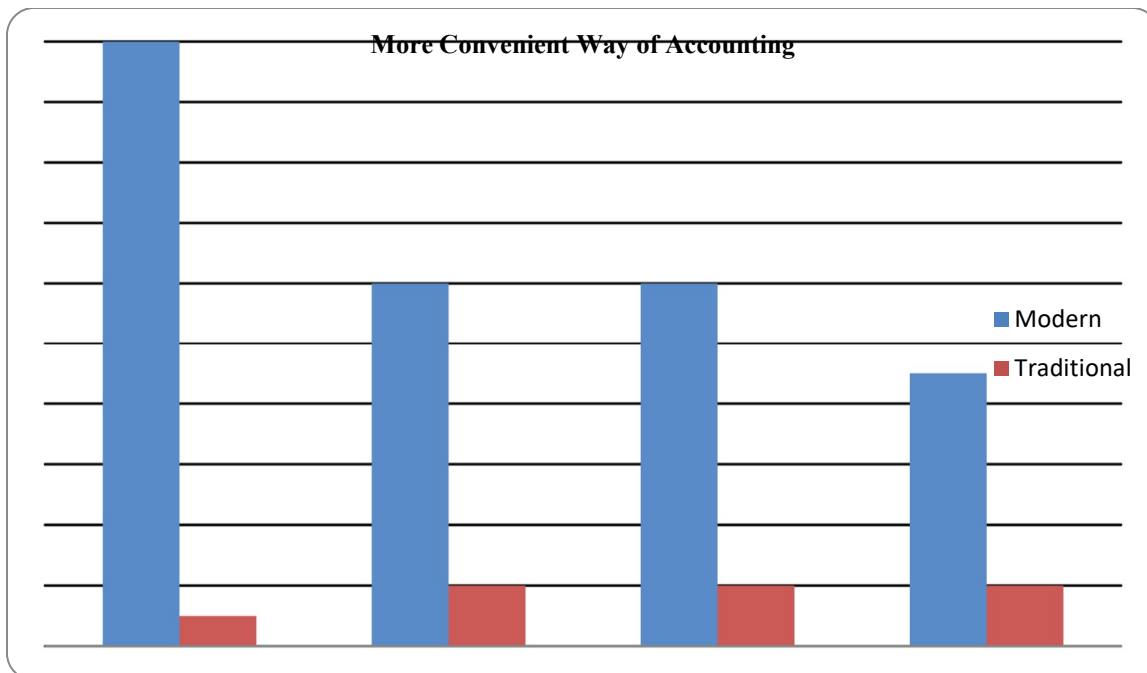
X² value

P value- 0.65691

Chi square value- 0.883289

Since p value is more than 0.05 therefore there is significant association between occupation and views regarding a more convenient approach to accounting.

Chart-10



Source: Primary Data

Findings: From the above chart it is clearly seen that there is significant association between occupation and views regarding a more convenient approach to accounting.

VII. INTERPRETATION OF THE TABLE-1

- a. SL.NO.1 – From the table, it is interpreted that maximum of the respondents (85%) are fully aware about Blockchain Technology and (15%) of the respondents are not aware,
- b. SL.NO.2- From the table, it is interpreted that a maximum of the respondents (71.7%) knows how Blockchain technology works, and some of the respondents (28.3%) don't know about the workings of blockchain technology.
- c. SL.NO.3- In this maximum of the respondents (40%) opine that Blockchain will help the auditor to find the trail of events in a most cost effective & efficient way, 30% of the respondents opine that it will reduce paper work. (10.5%) opines that it will reduce unauthorized alterations in accounting practices. (19.5%) opine that the process will be fast & Reliable.
- d. SL.NO.4- From the above table it can be concluded that (63.3%) of respondents think that Blockchain will improve the Future of Accounting. (25%) of the respondents think that blockchain may or may not improve the future of accounting, (5%) thinks it can partially improve, the rest (6.7%) thinks that it can improve.
- e. SL.NO.5- From the above table it is clear that (43.3%) of the respondents are aware of the Triple Entry system of Accounting, (26.7%) are partially aware, the rest (28.3%) are not aware.
- f. SL.NO.6- From the above table it can be concluded that about (63.3%) of the respondents think Blockchain increases the efficiency and security of data, rest (25%) and (8.3%) are not really sure .
- g. SL.NO.7- From the above table it seems that the biggest challenges in blockchain accounting is Lack of scalability, Lack of interoperability, complexity.
- h. SL.NO.8- From the above table it can be concluded that about (78.3%) of the respondents think that Blockchain is cost effective & rest (21.7%) think that it's not cost effective.
- i. SL.NO.9- From the above table it can be concluded that about (43.3%) respondents think that Triple Entry Accounting reduces dependency on Auditors,(40%) of the respondents thinks it will partially reduce the dependency rest (13.3%) think it can't reduce, Rest (3.4%) think it will highly reduce the dependency.
- j. SL.NO.10- From the table it is seen that about (56.7%) of the respondents Agree with the fact that Blockchain technology has made the practice of accounting and auditing convenient. next

(6.7%) respondents strongly agree with this, Next(16.7%) of the respondents partially agree and rest (20%) are Neutral about this fact.

- k. SL.NO.11- From the above table it can be concluded that about (45%) of the respondents think that Blockchain technology may replace accountants & Auditors, next (45%) of the respondents think that it will not replace, rest (10%) thinks that it can replace.
- l. SL.NO.12- From the above table it can be concluded that about (38.3%) of the respondents think that in blockchain there can be issues relating to confidentiality, next (28.3%) thinks that there may or may not be the issues regarding the confidentiality, Next (23.3%) thinks that there can't be any threat to confidentiality of data, rest (10%) don't know about this.
- m. SL.NO.13- From the above table it seems that about (55%) of the respondents think that Blockchain impact in the Finance industry will result in speed, transparency, decentralized ledger. Next (25%) think that it will only result in transparency, Rest (10%)believe it will impact Decentralized Ledger, next (10%) think it will result only in speed.
- n. SL.NO.14- From the above table it can be concluded that about (58.3%) of the respondents thinks that Blockchain will improve the Future of Accounting & Auditing, Next (26.7%) thinks it will Partially improve, Rest (6.7%) believe it may or may not improve.
- o. SL.NO.15- From the above table lastly it can be concluded that about (88.3%) of the respondents thinks that Modern way of accounting is more convenient. Rest (11.7%) respondents only think that the Traditional way of accounting is more convenient.

VIII. CONCLUSIONS

From the study and the analysis, it is clear that there are differences in the opinions of the respondents. Following conclusions can be made from the observations-

Maximum respondents are aware of blockchain technology whereas maximum respondents support that Blockchain will help the auditor to find the trail of events in a most cost effective & efficient way. More than half of the respondents know how blockchain technology actually works. From the study it is also found that blockchain will improve the future of accounting. In fact, many respondents are aware of the triple entry accounting system. While many respondents think that Blockchain increases the efficiency and security of data whereas it also has challenges like lack of scalability, lack of interoperability, complexity. Maximum respondents think that blockchain is cost effective and triple entry accounting reduces

dependency on auditors. Finally, it gives the insight that maximum respondents support that modern way of accounting is more convenient and blockchain will impact the finance industry.

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