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ASSESSING THE IMPACT OF ARTIFICIAL INTELLIGENCE ON ACCOUNTING AND AUDITING JOBS IN ZAMBIA.

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ABSTRACT

Artificial Intelligence (AI) is transforming accounting and auditing, yet its effects on jobs in developing countries like Zambia remain underexplored. This study assesses AI's impact on accounting and auditing jobs in Zambia. Using a qualitative approach, 122 questionnaires were administered to participants in the study from Lusaka and Mazabuka districts . After analysis the findings reveal 75% of respondents lacked AI training, while 61% perceived AI's impact positively. About 52% of organizations had implemented AI, primarily Robotic Process Automation. The study highlights significant Implications for accounting and auditing professionals in Zambia. AI adoption is expected to grow, emphasizing the need for AI-focused training and curriculum updates. This will address skills gaps and ethical concerns, ensuring professionals are equipped to work with emerging technologies. Key recommendations include integrating AI education into accounting and auditing curricula and providing ongoing training for professionals. Addressing ethical concerns around data privacy, security, and bias in AI decision-making is also crucial. The study's findings have significant implications for policy and practice in Zambia's accounting and auditing sector. By investing in AI education and training, Zambia can leverage AI's benefits while minimizing its risks. This will enable accounting and auditing professionals to remain competitive and contribute to the country's economic development. Furthermore, the study suggests that AI can enhance efficiency and accuracy in accounting and auditing processes.

KEYWORDS : Artificial Intelligence, Accounting, Auditing, Technology, Zambia.

INTRODUCTION

The integration of Artificial Intelligence (AI) in accounting and auditing is reshaping tasks, efficiency, and job roles globally. While AI enhances accuracy and automates routine processes, concerns about job displacement and skill requirements persist. In Zambia, limited research exists on AI's effects on accounting and auditing professionals. This study addresses this gap by examining AI's impact in Lusaka and Mazabuka districts, focusing on awareness, implementation, job satisfaction, and ethical concerns. The findings aim to inform academia, professionals, and policymakers.

Literature Review

Artificial Intelligence AI's impact on accounting and auditing has been studied globally, with findings indicating both opportunities such as increased efficiency, reduced errors and challenges such as job displacement, skills gaps. Robotic Process Automation (RPA) and Machine Learning (ML) are commonly adopted technologies (Chukwudi & Okonkwo, 2020). The integration of Artificial Intelligence (AI) in accounting and auditing is a growing trend, transforming business functions and professions. AI encompasses a broad scope, influencing business education and practices (Kokina & Davenport, 2017). Its applications include Robotic Process Automation (RPA), speech, image recognition, data mining, and machine learning (CFB, 2018; Boulton, 2018).

The accounting and auditing discipline is impacted by AI, with developments moving towards a tipping point that will change how the profession is practiced and perceived (AAAI, 2017). In developing countries, studies are limited, highlighting a need to assess AI's local effects (Mugenda & Mugenda, 2019).

Conceptual/ Theoretical framework

The conceptual framework for this study is based on the understanding that Artificial Intelligence (AI) is transforming the accounting and auditing profession in Zambia. The framework illustrates the relationships between AI, accounting and auditing jobs, and the attitudes and perceptions of accounting professionals.

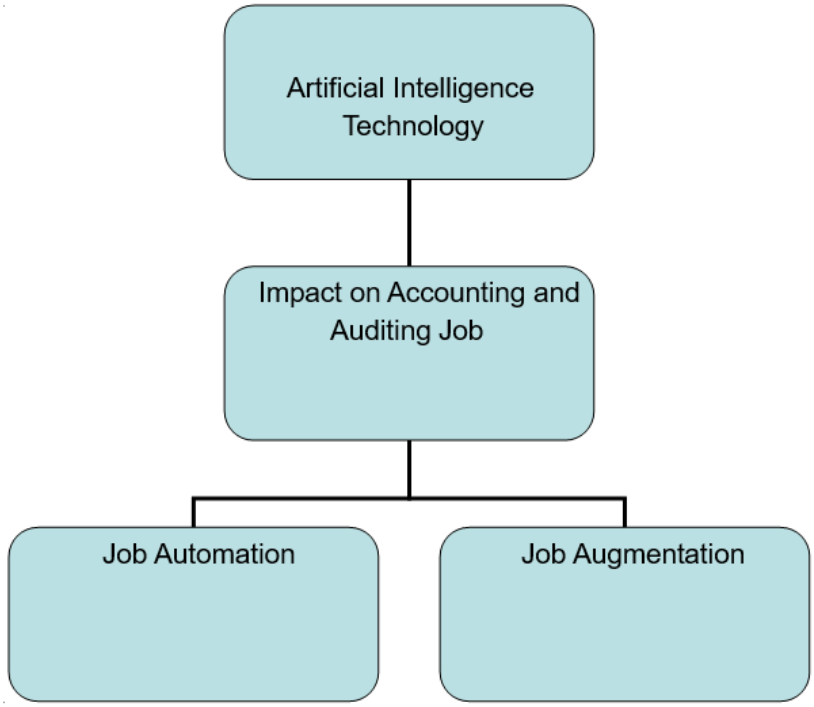

Figure 1 Conceptual Frame work.

Theoretical Framework

The theoretical framework for this study is grounded in the following theories:

1. Technological Acceptance Model: This theory explains how users accept and use new technology, such as AI.

2. Diffusion of Innovations Theory: This theory explains how new ideas, such as AI, are adopted and diffused within a social system.

3. Job Characteristics Theory: This theory explains how changes in job characteristics, such as those brought about by AI, affect employee attitudes and behaviors.

Study Variables

Table: 1

Dependent Variable	**Independent Variables**
Job Displacement	AI Implementation, Job Automation, Skill Requirement
Job Transformation	AI Implementation, Job Automation, Skill Requirement
Accuracy and Efficiency	AI Implementation, Job Automation, Skill Requirement
Job Satisfaction	AI Implementation, Job Automation, Skill Requirement, Job Transformation
Ethical Considerations	AI Implementation, Job Automation, Skill Requirement, Job Transformation
Cost Savings	AI Implementation, Job Automation, Skill Requirement
Adoption Rate	AI Implementation

METHODOLOGY

This qualitative study used simple random sampling to distribute questionnaires to 122 accounting and auditing professionals, 74 participants in the research were drawn from organisations within Lusaka while the other 48 were from organisations in Mazabuka districts of Zambia. The questionnaire assessed AI awareness, implementation, job impact, and ethical concerns. Data were analyzed descriptively, with findings presented in tables and figures. Limitations include sample size and geographic focus, suggesting future research for broader insights.

RESULTS

The results of the descriptive information were derived from the questionnaires that were administered to accountants or auditors from the 122 organisations in the public and private sectors based in Lusaka and Mazabuka districts of Zambia. The response rate was 100%, all the 122 respondents from the selected organisations had a questionnaires administered to them.

The data was analysed and interpreted according to the study objectives and research questions. The questionnaire administered had six sections namely; Demographic Information, awareness and perceptions of AI, AI Implementation in accounting and auditing, impact on Skills and Job Satisfaction, ethical considerations and concerns and additional comments sections. It is worth noting that the respondents did not respond to the section on additional comments, they opted to answer the questions that were coded as it was easier for them to complete the questionnaire owing to their busy and tight work schedules.

Demographic Information

Table 2: Gender analysis

1. Gender:	**Respondents Lusaka**	**Respondents Mazabuka**	**Total Respondents**	**Percentage of Total Respondents**
1. Male	**34**	**30**	**64**	**52%**
2. Female	**40**	**18**	**58**	**48%**
Total	**74**	**48**	**122**	**100%**

Table 2 above shows the composition of respondents who answered the questionnaires based on gender, 64 males and 58 females making up a total of 122 respondents had questionnaires administered successfully.

In terms of proportions figure 2 below depicts the breakdown;

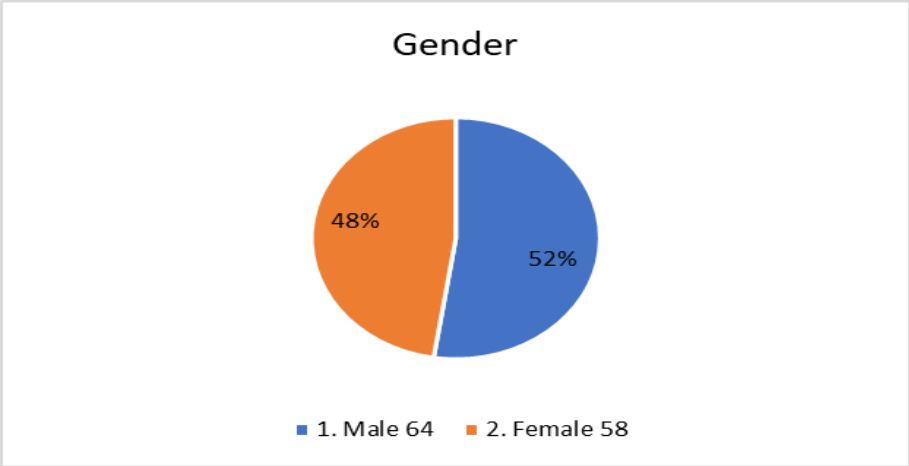

Figure 2: Gender analysis.

Table 3: Age analysis.

2. Age:	**Respondents Lusaka**	**Respondents Mazabuka**	**Total Respondents**	**Percentage**
1. 18-25	5	2	**7**	**6%**
2. 26-35	29	21	**50**	**41%**
3. 36-45	34	21	**55**	**45%**
4. 46 and above	6	4	**10**	**8%**
Total	**74**	**48**	**122**	**100%**

The demographics table 3: above shows the age range of the respondents of the study, the age range of the study was between 18 to above 46 years old. The highest respondents were in the age range of 36-45 whilst the least respondents were in the 18-25 years' age range. Figure 2 below show the age presented graphically.

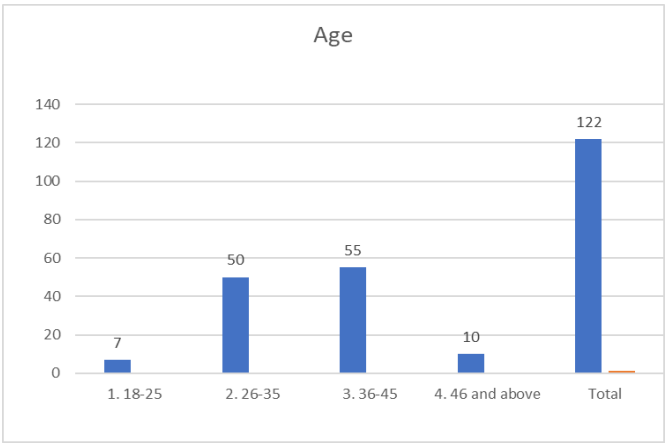

Figure 3. Age analysis

Table 4: Educational Qualifications

3. Educational Qualifications:	Respondents Lusaka	Respondents Mazabuka	Total Respondents	Percentage
1. High school	0	0	**0**	**0%**
2. Bachelor's degree	41	30	**71**	**58%**
3. Master's degree	8	5	**13**	**11%**
4. Professional qualification (e.g., ACCA, CIMA)	25	13	**38**	**31%**
5. Other (please specify)	0	0	**0**	**0%**
Total	**74**	**48**	**122**	**100%**

The respondents who participated in the study had different types of qualification in relation to accountancy. Of the participants who answered the questionnaire, there were 71 participants who had degrees in accountancy and these represented the highest number of participants. The table showing qualification was further analysed on the pie chart as shown below.

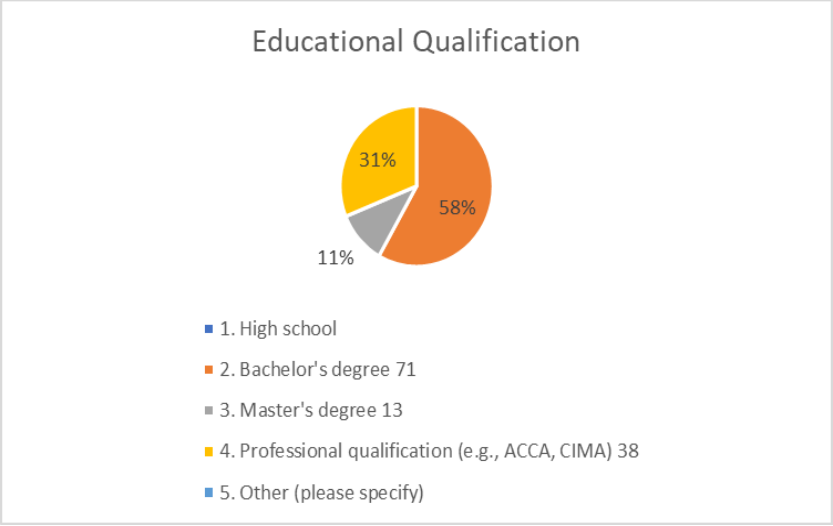

Figure 4. Educational qualifications

Table 5: Years of Experience in Accounting and Auditing.

4. Years of Experience in Accounting and Auditing:	Respondents Lusaka	Respondents Mazabuka	Total Respondents	Percentage
1. Less than 1 year	5	3	**8**	**7%**

2. 1-3 years	6	3	**9**	**7%**
3. 4-6 years	53	36	**89**	**73%**
4. 7-10 years	10	6	**16**	**13%**
More than 10 years	0	0	**0**	**0%**
Total	**74**	**48**	**122**	**100%**

The study questionnaire section that covered the experience of the respondent in the field of accountancy or auditing from the study sites showed that of the 122 study respondents, 89 participants representing 73% of the sampled population had worked between 4-6 years in either the accounting or auditing organisations from public and private organisations based in Lusaka and Mazabuka districts.

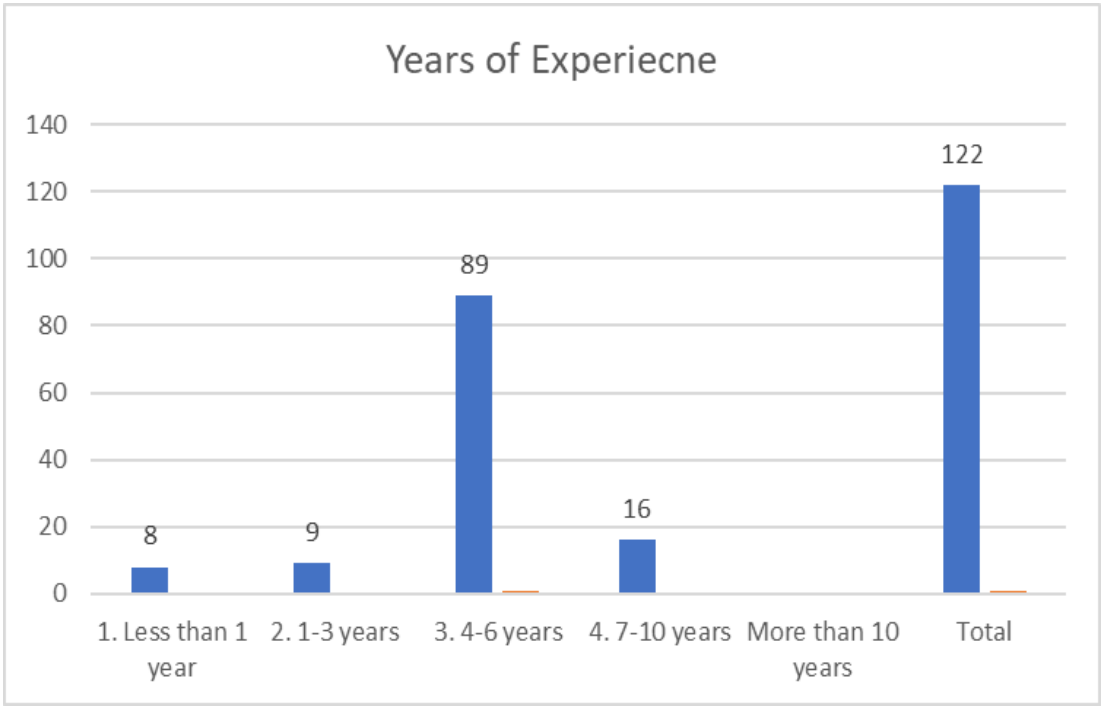

Figure 5: Years of Experience in Accounting and Auditing

Awareness and perceptions of AI

Table 6: Familiarity with the concept of Artificial Intelligence. (AI)

1. Are you familiar with the concept of Artificial Intelligence (AI)?	**Respondents Lusaka**	**Respondents Mazabuka**	**Total Respondents**	**Percentage**
1. Yes	50	36	**86**	**70%**
2. No	24	12	**36**	**30%**
Total	**74**	**48**	**122**	**100%**

This table above shows the number of respondents with regard to awareness of AI and familiarisation, the proportions have been further depicted on the pie chart below;

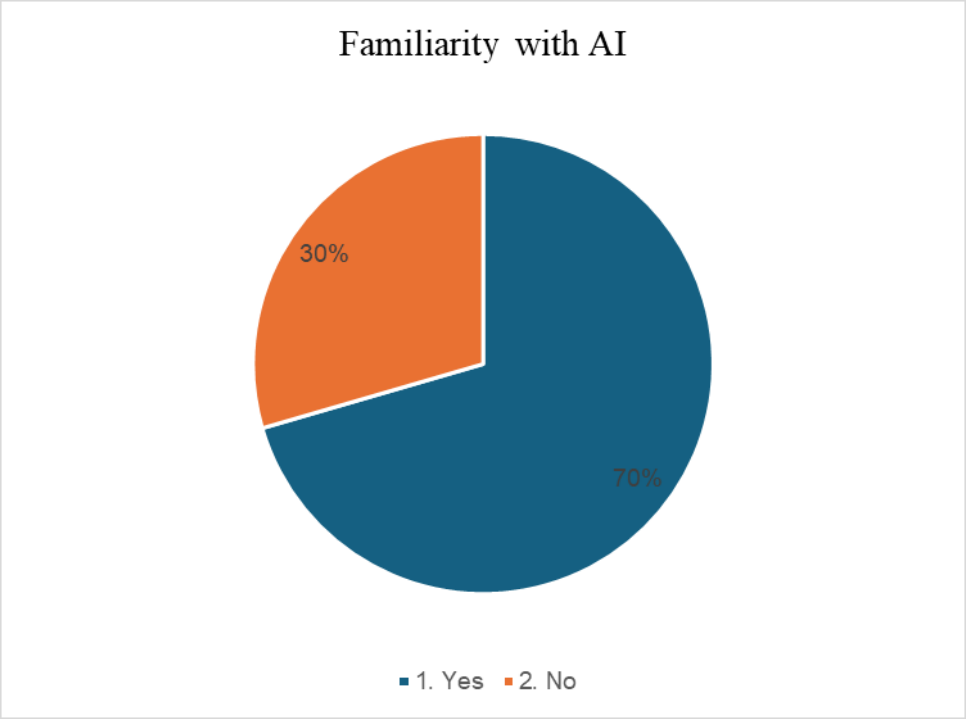

Figure 6: Familiarity with AI

Table 7: Training or education on AI

2. Have you received any training or education on AI?	**Respondents Lusaka**	**Respondents Mazabuka**	**Total Respondents**	**Percentage**
1. Yes	40	28	**68**	**56%**
2. No	34	20	**54**	**44%**
Total	**74**	**48**	**122**	**100%**

The table shows that 56% of the respondents who participated in the study had received some form of training or education on AI, in absolute numbers 68 out of the 122 respondents had knowledge with regard to AI. The above table has been interpreted in form of a pie chart here below;

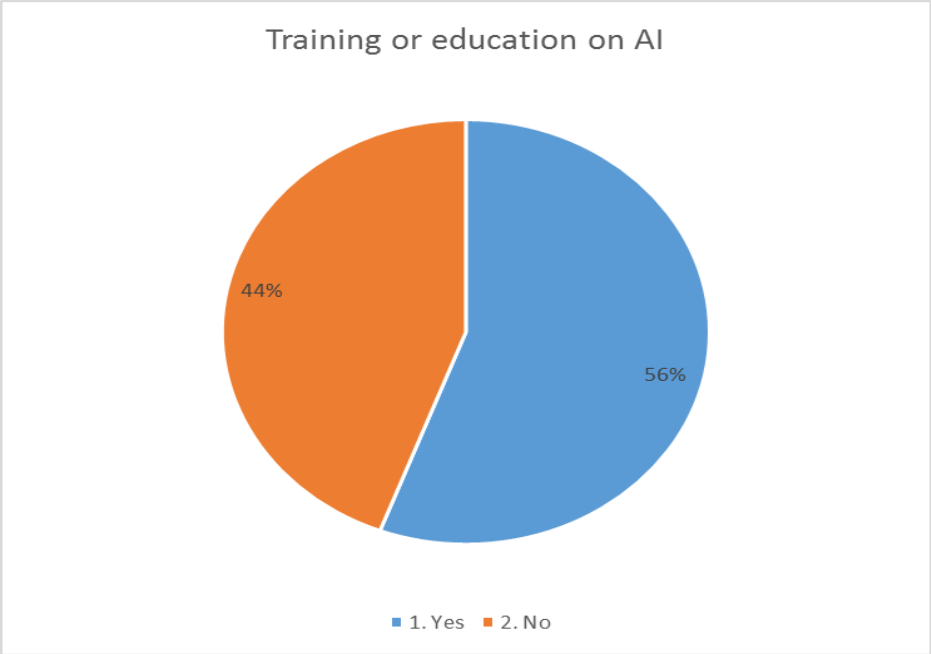

Figure 7: Training or education on AI

Table 8: Knowledge of AI and its applications.

3. How would you rate your knowledge of AI and its applications in accounting and auditing?	**Respondents Lusaka**	**Respondents Mazabuka**	**Total Respondents**	**Percentage**
1. Very knowledgeable	17	4	**21**	**17%**
2. Moderately knowledgeable	45	20	**65**	**53%**
3. Slightly knowledgeable	4	6	**10**	**8%**
4. Not knowledgeable at all	8	18	**26**	**21%**
Total	**74**	**48**	**122**	**100%**

The table above shows how the respondents scored with regard to how knowledgeable they were with regard to AI. The data in the table has also been analysed on the graph. It shows that only 17% of the respondents (21) were very knowledgeable on AI while 21 % (26 respondents had no knowledge on AI), the majority of the respondents at 53% had moderate knowledge.

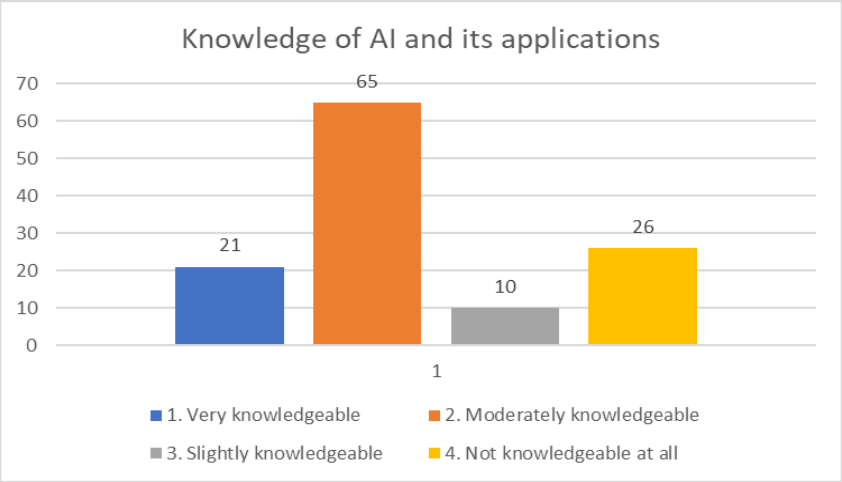

Figure 8: Knowledge of AI and its applications

In terms of perception, a large portion of the respondents scored the highest with regard to positivity of AI as can be seen from the table below, the results have also been shown on the pie chart below the table;

Table 9: Perception of impact of AI.

4. What is your perception of the impact of AI on the accounting and auditing profession?	**Respondents Lusaka**	**Respondents Mazabuka**	**Total Respondent**	**Percentage**
1. Positive	54	35	**89**	**73%**
2. Negative	12	3	**15**	**12%**
3. Neutral	8	10	**18**	**15%**
Total	**74**	**48**	**122**	**100%**

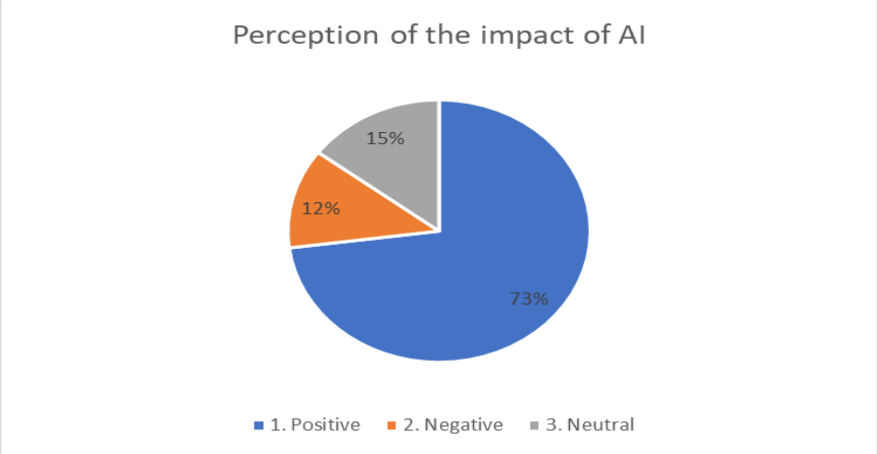

Figure 9: Perception of impact of AI

It shows that they was a large portion of those that scored positively with regard to the perception of AI in their organisations. 73% were positive, 12% were negative while the remaining 15% remained neutral.

AI Implementation in accounting and auditing

Table 10: AI implementation.

1. Has your organization implemented AI technologies in accounting and auditing processes?	**Respondents Lusaka**	**Respondents Mazabuka**	**Total Respondent**	**Percentage**
1. Yes	45	13	**58**	**48%**
2. No	29	35	**64**	**52%**
Total	**74**	**48**	**122**	**100%**

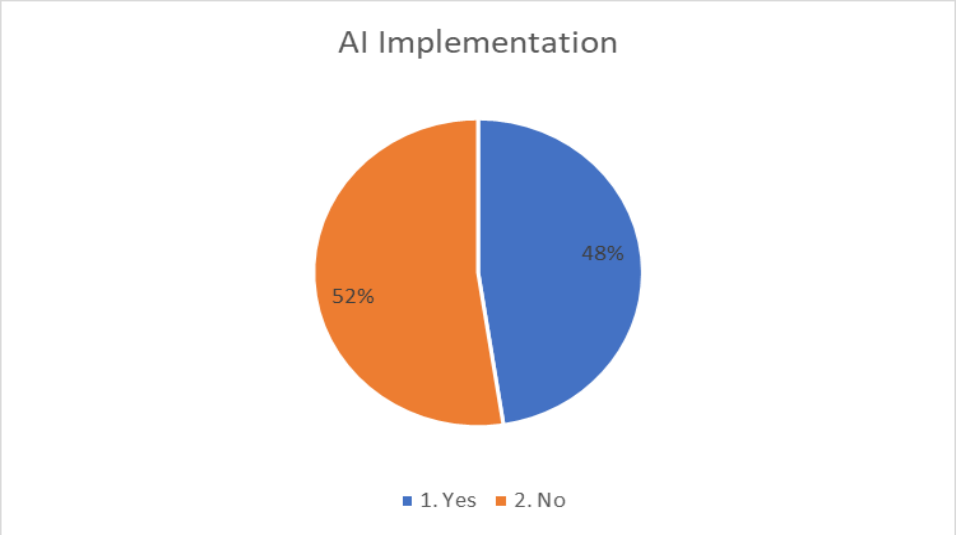

Figure 10: AI Implementation.

The results above show that 48% of the respondents indicated that AI was being used in their organisations in the processing of transactions, the other 52% of the respondents scored that AI was not in use in their organisations.

Table 11: Use of AI technology.

2. If yes, which specific AI technologies are currently being used? (Check all that apply)	**Respondents Lusaka**	**Respondents Mazabuka**	**Total Respondent**	**Percentage**
1. Automated data entry	34	23	**57**	**98%**
2. Robotic process auton (RPA)	1	0	**1**	**2%**

3. Machine learning for data analysis	0	0	**0**	**0%**
4. Natural language processing (NLP)	0	0	**0**	**0%**
5. Other (please specify)	0	0	**0**	**0%**
Total	**35**	**23**	**58**	**100%**

The results in the table above show that of the 48% representing 58 respondents that indicated that there was AI implantation in their organisation, 98 % showed that AI was used for automated data entry in their organisations, the other 2% said that AI was used for Robotic Process Automation, see the table above and the graph below.

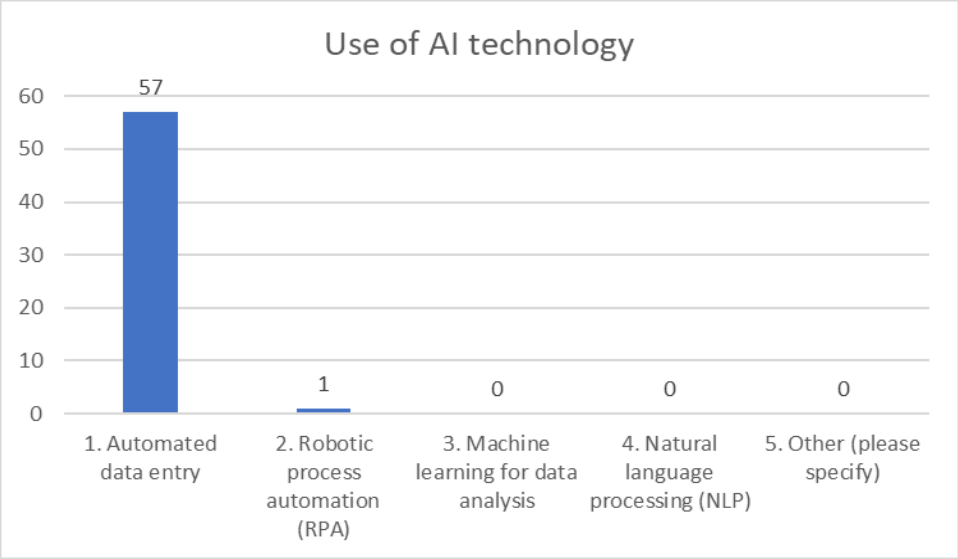

Figure 11: Use of AI technology

Table 12: Efficiency of AI.

3. How has AI implementation affected the efficiency of accounting and auditing processes in your organization?	**Respondents Lusaka**	**Respondents Mazabuka**	**Total Respondent**	**Percentage**
1. Improved efficiency	65	20	**85**	**70%**
2. No significant change	6	19	**25**	**20%**
3. Decreased efficiency	3	9	**12**	**10%**
Total	**74**	**48**	**122**	**100%**

The table shows how the implementation of AI has affected the efficiency of processing transactions in organisations. The table shows that 70% of the respondents indicated that AI has improved the processing of transaction, 20 % of indicated that there is no significant change even with AI implementation in their organisations while 10% indicated that there

was decreased efficiency with the implementation of AI. The Pie chart below shows the results as tabulated in the table above.

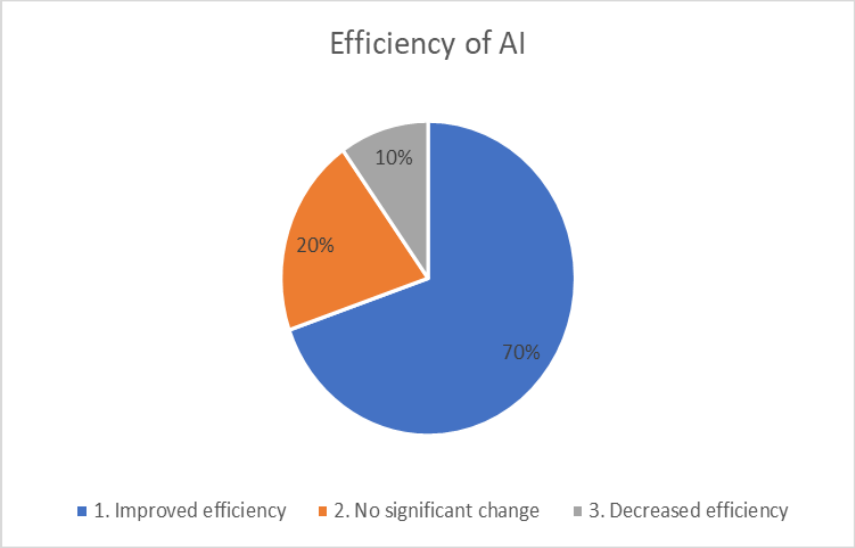

Figure 12: Efficiency of AI

The table below shows what the respondents thought about AI and job losses, 57% being the highest score. It showed that a lot of workers will lose their jobs due to AI implementation while 26% of the respondents felt that jobs will not be lost. The other 17% had no AI being implemented in their organizations and hence this issue of AI was not applicable to them.

Table 13: Job losses due to AI implementation

4. Have there been any job losses or changes in job roles in your organization due to AI implementation?	**Respondents Lusaka**	**Respondents Mazabuka**	**Total Respondent**	**Percentage**
1. Yes	43	26	**69**	**57%**
2. No	21	11	**32**	**26%**
3. Not applicable (AI has not been implemented)	10	11	**21**	**17%**
Total	**74**	**48**	**122**	**100%**

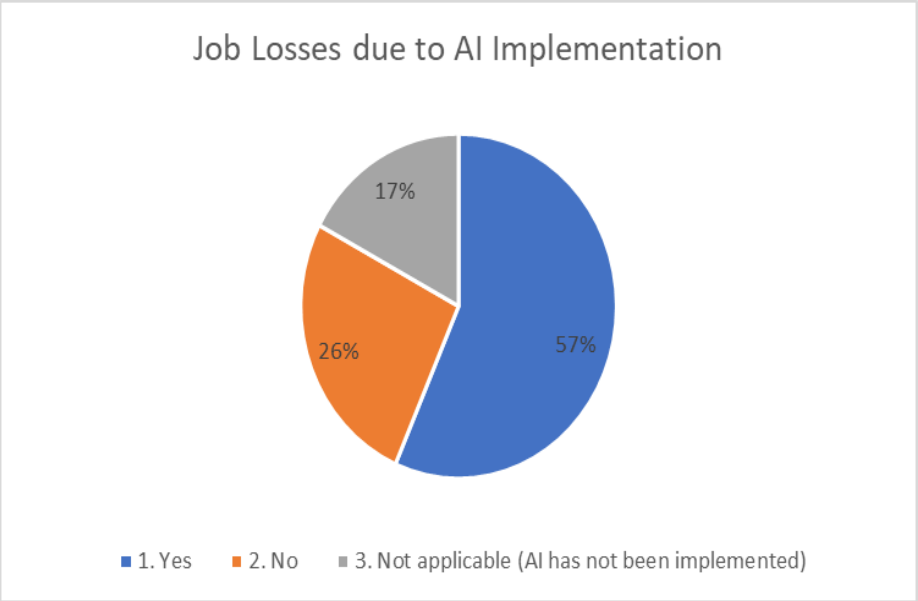

Figure 13: job losses due to AI implementation

Impact on skills and Job satisfaction

Table 14: Job satisfaction .

1. How has the introduction of AI affected the skill requirements for accounting and auditing jobs?	**Respondents Lusaka**	**Respondents Mazabuka**	**Total Respondent**	**Percentage**
1. Increased technical skills	34	2	**36**	**30%**
2. Increased analytical skills	15	30	**45**	**37%**
3. Increased communication skills	20	5	**25**	**20%**
4. Decreased skill requirements	5	9	**14**	**11%**
5. No significant change	0	2	**2**	**2%**
Total	**74**	**48**	**122**	**100%**

The table above shows the impact of AI on job satisfaction, 2% of the sampled population indicated that the use of AI has no significant change on the skills and job satisfaction while 37% of the sampled population indicated that there was increased analytical skills. The table also shows some proportions with on the effects of AI on communication at 20%, technical 30% and general decrease in skills 11%.

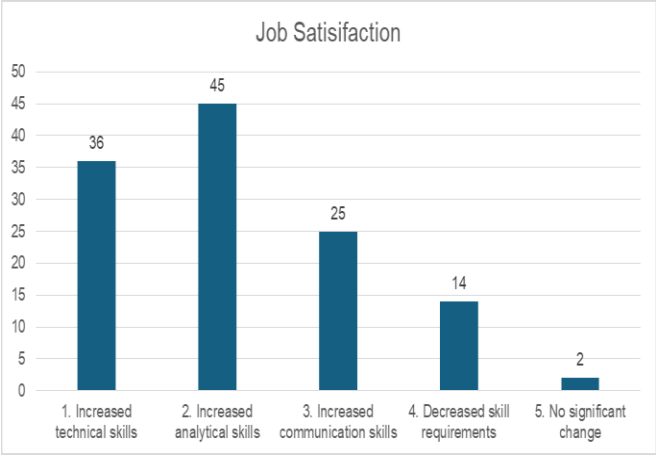

Figure 14: Job satisfaction

Table 15: Change in responsibility to AI

2. Have you experienced any changes in your job responsibilities or tasks due to AI implementation?	**Respondents Lusaka**	**Respondents Mazabuka**	**Total Respondent**	**Percentage**
1. Yes	49	27	**76**	**62%**
2. No	20	16	**36**	**30%**
3. Not applicable (AI has not been implemented)	5	5	**10**	**8%**
Total	**74**	**48**	**122**	**100%**

The table shows the results obtained from the questionnaire section that looked at the effects of AI on changes in job responsibilities. 62% of the respondents indicated that the coming of AI brought about the changes in the levels of responsibility, 30% indicated that there was no change in the levels of responsibility while 8% of the respondents showed that this was not applicable to them as they had not started using AI in their organizations.

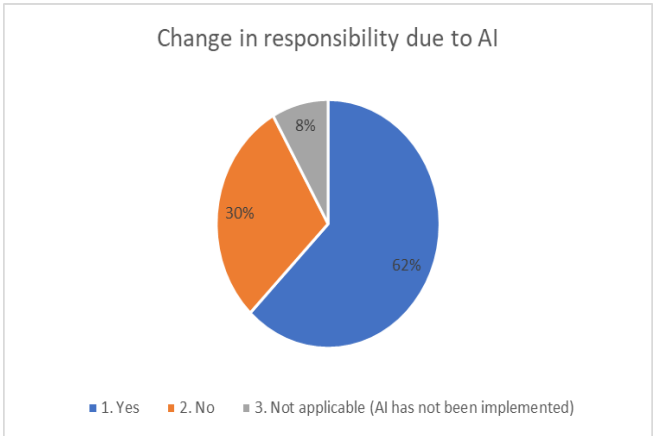

Figure 15: Change in responsibility to AI

The table below shows the results rated by the participants, it shows the effect of AI on job satisfaction accounting and auditing.

Table 16: Job satisfaction due to introduction of AI

3. How would you rate your job satisfaction since the introduction of AI in accounting and auditing?	**Respondents Lusaka**	**Respondents Mazabuka**	**Total Respondent**	**Percentage**
1. Very satisfied	31	17	**48**	**39%**
2. Moderately satisfied	25	10	**35**	**29%**
3. Slightly satisfied	17	12	**29**	**24%**
4. Not satisfied at all	1	9	**10**	**8%**
Total	**74**	**48**	**122**	**100%**

A bigger proportion of the sampled respondents showed that they were satisfied by the introduction of AI in their organizations.

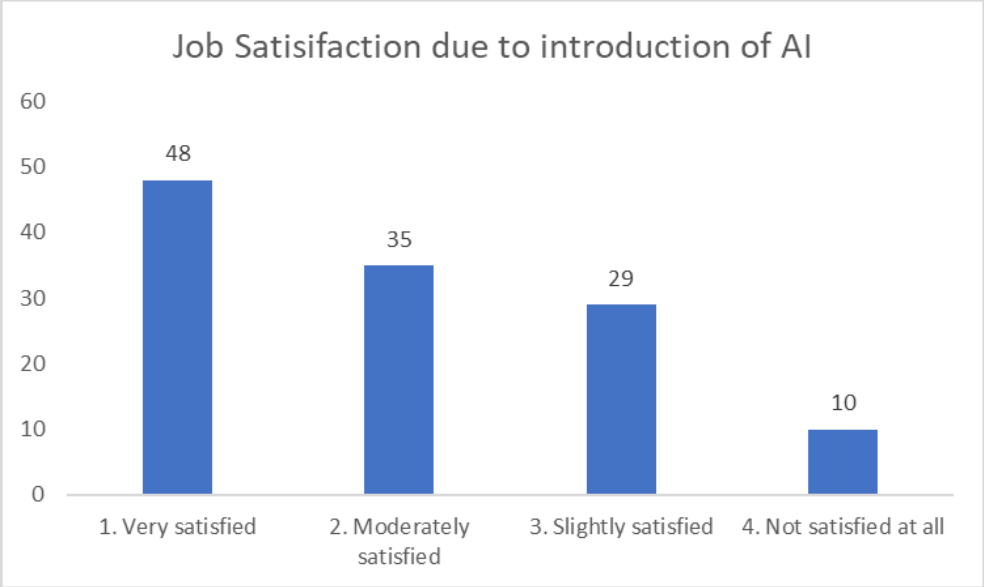

Figure 16: Job satisfaction due to introduction of AI

Ethical considerations and concerns

Table 17: AI ethical considerations .

1. Are you concerned about the ethical implications of using AI in accounting and auditing?	**Respondents Lusaka**	**Respondents Mazabuka**	**Total Respondent**	**Percentage**
1. Yes	44	29	**73**	**60%**
2. No	30	19	**49**	**40%**
Total	**74**	**48**	**122**	**100%**

The table below shows that 60% of the participants in the study scored that had ethical concerns with regard to the use of AI in accounting and auditing jobs, the other 40% showed no concerns with regard to the use of AI in their organizations.

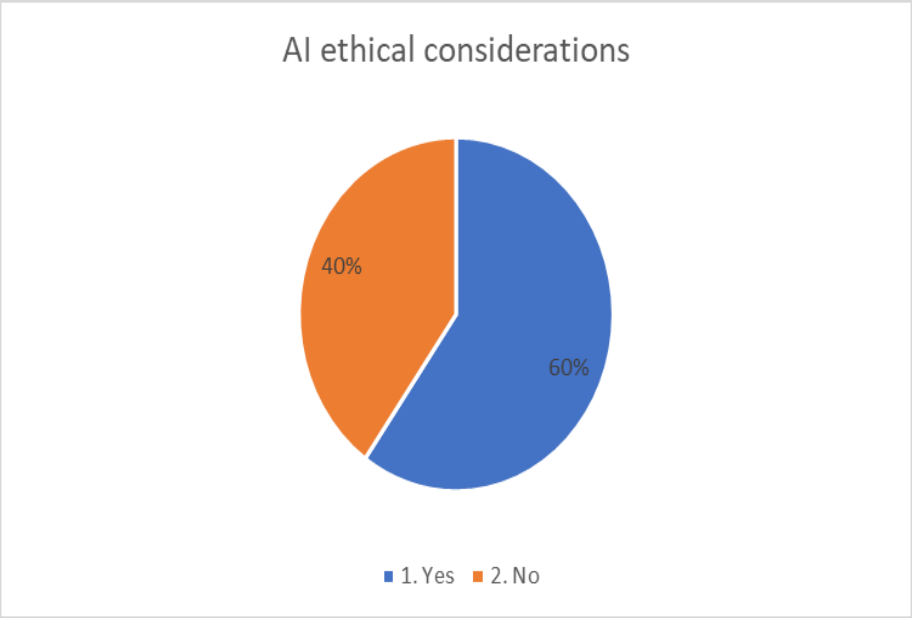

Figure 17: AI ethical considerations.

Table 18: Ethical consideration of AI

2. Which ethical considerations do you think are most relevant to AI use in accounting and auditing? (Check all that apply)	**Respondents Lusaka**	**Respondents Mazabuka**	**Total Respondent**	**Percentage**
1. Data privacy and security	17	18	**35**	**29%**
2. Bias and fairness	10	6	**16**	**13%**
3. Transparency and explainability	8	12	**20**	**16%**
4. Unemployment and job displacement	39	12	**51**	**42%**
5. Other (please specify)	0	0	**0**	**0%**
Total	**74**	**48**	**122**	**100%**

The table above shows a list of ethical concerns and the proportion as scored by the study participants. The highest concern being that of data privacy and security at 29% while the least is the concern on bias and fairness with a score of 13%.

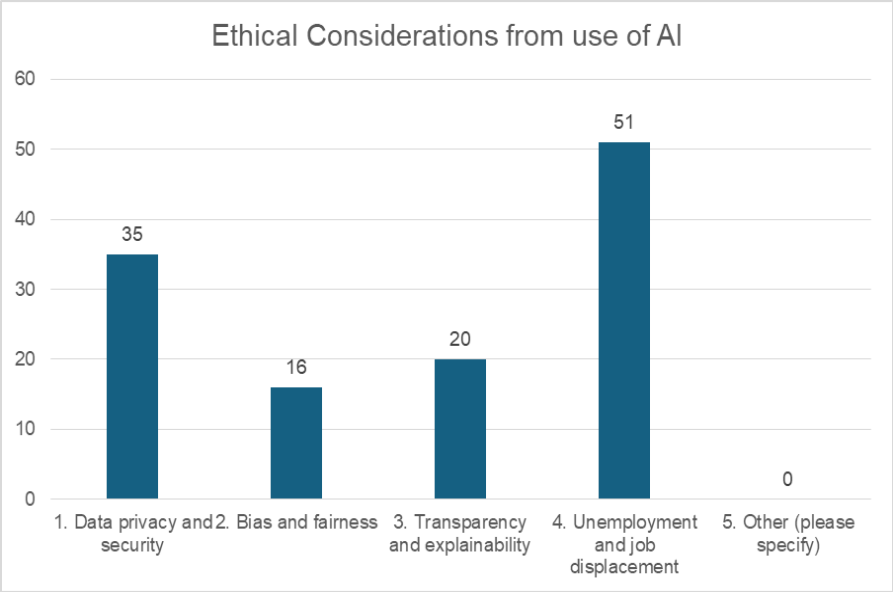

Figure 18: Ethical consideration from of AI

DISCUSSION

The first section of the questionnaire was about the demographic feature of the sample. From the 122 organisations that were randomly selected from the two districts, there were 64 male respondents and 58 female respondents representing 52% and 48% respectively. The age of the 122 study participants was distributed as shown in the table below:

Table 19: Age analysis-1

2. Age:	**Respondents Lusaka**	**Respondents Mazabuka**	**Respondent**	**Percentage**
1. 18-25	5	2	**7**	**6%**
2. 26-35	29	21	**50**	**41%**
3. 36-45	34	21	**55**	**45%**
4. 46 and above	6	4	**10**	**8%**
Total	**74**	**48**	**122**	**100%**

There were 71 degree holders participants, 13 master's degree holders and 38 professionals with ACCA. In terms of work experience, the sample had variety of experienced respondents ranging from 1 year to 10 years of experience.

These finding were from the demographic section of the questionnaire, the results represented a well-balanced and good sample that was selected to give the general picture on the effects of AI in the accountancy profession.

In the second section of the questionnaire, awareness and perception of AI in accounting jobs was of concern. Here from the total sample, 70 % of the participants indicated that they were aware of what AI was about. Further 56% had been trained or had some education background in relation to AI. Participants also responded to the question as to how they rated their knowledge of AI and its application in accounting and auditing, 53% responded that they had moderate knowledge while and the rest showed that there understanding ranged between 8 to 21% those very knowledgeable being represented with a proportion of 21%.

In terms of perception of AI on the accounting and auditing profession there was a 73% in favour of AI as having a positive impact to the profession, 12 % indicated the negative perception while only 15 % were neutral in terms of the perception.

The questionnaire also had a section that looked at the issues to deal with organizations implementing the use of AI, here the results showed that 48% of the respondents indicated that the oganisations they worked for had implemented the use of AI in accounting and auditing. The results further show that the organisations that had implemented the use of AI 98% used AI for automated data entry in accounting and auditing. Only 2% or the organisations used AI in the robotic process automation. Results also show that AI improved efficiency in the processing of transactions in organisations. 70% of the respondents scored improved efficiency, 20 % scored AI to having no significant impact on the processing of transactions and 10% of the respondents indicated that AI had decreased efficiency with regard to transactions processing.

In terms of impact on skills and job satisfaction there was a feel that the use AI will bring about job satisfaction with a bigger proportion with 39% supporting this as was seen even from those that said they will be moderately satisfied the percent was 29% and the least was those who said they will be not satisfied by the use of AI with 8%, from these distributions it can be seen that AI has more benefits that can be leveraged by the profession.

Regarding ethical considerations, the respondent showed that they were concerned with data that these AI's were going to accumulate and hold, although the majority showed concern with the displacement of jobs by these AI there was a feel also that the data will not be secure with the AI's.

AI is a good thing and should be embraced by the profession as it has a lot of benefits that can be leveraged. What the profession should do is to train and improve the skills, further, the sectors should invest in the AI technology.

CONCLUSION

The implementation of AI technology in accounting and auditing jobs needs to be checked constantly by the implementing organizations, if they want stay relevant to the tasks in business. The benefits of efficiency, speed, and accuracy of AI are yet to be considered in the conduct of business. Accountants need to realise the value that AI is adding to the processing of transactions and hence should welcome AI technology and integrate it into the tasks of maximizing professional output. Accounting, auditing Firms and accountants are becoming better equipped and are adopting and implementing tasks with AI technology in their accounting processes, this integration is becoming more valuable both to the clients and to the world at large. The Institutions of learning have already started integrating AI technology into curriculum and learning modules. This means that the students graduating from any such universities will join into the workforce with necessary skills that are needed to work in an automated accounting and auditing environment.

Nonetheless, it is important that the already practicing accountants also strive to acquire the AI skills so that they too remain relevant to their employers or clients. IT and AI skills can also be obtained by attending seminars, attending college-level courses, or even using self-learning online programs. It is essential for accountants to be up-to-date on the latest accounting trends, industry news, and emerging technologies, by so doing employers will allow them not only to keep their jobs but also to render more quality services to their clients. Further, instead of worrying about AI taking over the accountants and auditors jobs, accountants need to learn how to embrace this technology as an important tool (solution) to enhance customer services. With the right training and skills, accountants are assured of a lucrative and sustainable career that will last well into the future.

RECOMMENDATIONS

Accounting firms and accountants should put an effort in improving their knowledge and skills about Artificial intelligence as this will help them enhance performance in various accounting tasks and functions, doing so will help eliminate most unwanted and avoidable costs.

Researchers in the field of accounting and auditing need to work hand in hand with AI researchers to improve the functionality of the accounting discipline.

The accounting discipline has room for further improvement through the use and development of complex AI applications, such as neural networks, expert systems, fuzzy systems, genetic programming, and hybrid systems and this possibility should be investigated to the fullest extent possible.

There is need for improved Cyber-defense and strengthened systems security in order to protect data that will be stored by the AI's.

Where AI are in use, management should ensure that there are also alternative technologies and technicians on standby to offer technical support in case of any system failures or break downs.

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