The influence of artificial intelligence on improving tax collection in Zanzibar Revenue Authority

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ABSTRACT

This research was conducted to explore the impact of Artificial Intelligence (AI) on improving tax collection practices within the tax collection agency known as the Zanzibar Revenue Authority (ZRA). The study aligned with two specific objectives: first, to assess employees' perceptions of AI on improving tax collection at ZRA, and the second objective is to examine the role of AI in tax fraud detection on improving tax collection at ZRA. The study employed a quantitative research methodology with a cross-section research design. The Technological Acceptance Model (TAM) was the model which was used to support this study. The target population was 373 employees who are engaged in tax collection practices, with a sample size of 193, which was obtained through Yamane's formula, and the proportionate stratified sampling strategies are used to select the participants. Closed-ended questionnaires were used to collect primary data. Data analysis was performed using descriptive and inferential statistics through multiple linear regression analysis. The results showed that there is a positive relationship between the employees' perception and improved tax collection ($r=0.827$, $p<0.1$). This strong positive perception indicates a readiness and supportive environment to implement AI in tax administration, which can help to streamline processes and increase operational efficiency. The results also showed that there is a positive relationship between the AI role in tax fraud detection and improved tax collection ($r=0.849$, $p<0.1$). This indicates that AI has the potential to increase revenue and help the taxpayers to comply with tax regulations effectively. Since ZRA employees perceived AI as useful tools to improve tax collection, they are ready to support it. It is recommended that ZRA urgently needs to invest in AI to help improve revenue performance; this investment will require a robust digital infrastructure with strong data security and privacy measures while adopting a phased implementation strategy. To avoid failure, it is advisable to start with pilot projects while carefully selecting suitable AI technologies for successful integration with existing systems.

Keywords: Artificial Intelligence, Tax Fraud Detection, Tax Collection, Zanzibar Revenue Authority

I. INTRODUCTION

Information and Communication Technology (ICT) has become an integral part of global governance and economic systems; it plays a key role in transforming traditional processes across sectors towards digital technology(Umar et al., 2023). ICT tools, which are used in tax collection having a great potential to improve revenue collection worldwide by streamlining processes and increasing efficiency (Blume & Bott, 2021). Effective tax collection is significant for financing social development and strengthening respectable governance.

The widespread use of ICT services has led to the emergence of advanced digital technologies in revenue growth that have significantly affected business and economic activities (Umar et al., 2023). Digital technologies such as Artificial Intelligence (AI) are bringing new innovations that tax authorities must integrate their tax collection systems with such technologies to remain competitive and strengthen their revenue collection (Junquera et al., 2022). According to the report from United Nations Educational Scientific and Cultural Organization (UNESCO, 2022), it is recognized that the use of AI in tax collection is rapidly increasing in all countries around the world. Many governments see AI as an important tool to improve the competitiveness of their countries and stimulate economic growth. The World Bank (2024) predicts that AI could add $13 trillion to the global economy by 2030. Currently, more than 50 governments around the world have already developed strategies to implement AI in tax collection and improve their tax services.

AI is essential to boost tax compliance and business process. It helps tax authorities to control revenue leakage, streamline processes, detect fraud, tax evasion, and allocate resources more efficiently (Nembe et al., 2024). AI also helps improve compliance by ensuring accurate data collection from transactions and assisting tax agents in collecting the exact taxes. The U.S. Internal Revenue Service (IRS) has invested in new technologies and integrated AI into its internal operating systems. As of 2019, reports indicate that the IRS had recovered nearly $10 Billion in underpaid taxes through the effective use of AI (Caroline & Collin, 2024). However, deploying AI to improve tax administration comes with many risks including unethical use, lack of transparency, and potential violations of taxpayer privacy and data security (Shark, 2022).

The Boston Consulting Group (BCG) Foundation in 2018 reported that Australia has successfully leveraged

advanced AI technologies, such as machine learning and natural language processing to improve tax collection. The Australian Taxation Office (ATO) recovered over $530 million in late taxes and prevented $2.5 billion in fraudulent claims (Bentley, 2022). These AI systems have helped the ATO analyses large amounts of data, identify patterns of non-compliance, prevent fraud, and improve the efficiency and integrity of its tax collection system. Despite significant advances in AI-based tax collection worldwide, many African countries have yet to adopt AI technology in central government revenue collection (Moore et al., 2018). For example, the Nigerian's revenue collection agency hesitates to fully embrace this technology, which has hindered the country's revenue and value-added tax (VAT) revenue collection.

During the COVID-19 pandemic, the implementation of AI has been identified as having the potential to enhance tax collection and reduce system downtime resulting to less human interaction (Bala et al., 2022); this is because AI allows for automated tax collection and administration without human intervention. The effectiveness of the use of AI and other technologies in revenue means that AI can be a valuable resource for African governments in finding better ways to increase their revenue (Adegboye et al., 2022). It is suggested that the adoption of technology, especially AI, offers significant opportunities for African economic growth; especially when all the challenges associated with AI technology in tax collection are addressed. These include issues such as lack of internet facilities, expertise, security, lack of trust and many others (Gwagwa et al., 2020). Effective management of these challenges can stimulate economic growth and development of the community and the nation as a whole.

Kenya has successfully grown its economy with the help of AI and has been an active participant in the Fourth Industrial Revolution (4IR). For example, in Kenya's Revenue Collection, there are 49 AI applications, covering 15 sectors, including finance, education, trade and security (Akello, 2022). However, despite the full adoption of AI systems, there are still many challenges facing the revenue collection system (Rubab, 2023). These challenges include skills gaps, regulatory environment, connectivity issues, insufficient investment in research, and lack of data due to poorly trained algorithms that use inaccurate and unreliable data, leading to wrong results.

Tanzania has made significant progress in the effective use of ICT, ranking 26th in the world and second in Africa after Mauritius, reflecting its progress in the field of ICT (Adam, 2019). In terms of tax collection, the Tanzania Revenue Authority (TRA) and the Zanzibar Revenue Authority (ZRA) have implemented digital systems that have significantly increased tax revenue. For example, ZRA revenue increased from 565.89 billion in the 2022/2023 financial year to 675.601 billion in 2023/2024, indicating an increase of 106.39% (ZRA, 2024). In this regard, the Tanzania Five Year Development Plan (FYDP) III recognizes the presence and potential of new artificial intelligence (AI) technologies on improving tax collection, although the plan has not prepared a detailed implementation strategy to incorporate these technologies (Osakwe, 2023). This suggests that there is a need for more targeted strategies to encourage the adoption of AI in countries like Tanzania. As revenue agencies around the world are using AI models to address tax collection challenges, the researcher explored how AI could help the Zanzibar Revenue Authority (ZRA) improve its tax collection efforts.

1.1 Statement of the Problem

The Zanzibar Revenue Authority (ZRA) aims to improve its taxpayer service and tax collection processes through the integration of technological innovations (ZRA, 2020). The technology to be used is intended to increase overall revenue by reducing errors and improving the organization's business processes and facilitating better service to its taxpayers, such services include online registration, online filing and online payments. Artificial Intelligence (AI) can therefore be used to support better tax administration because it can improve revenue collection, automate tedious tasks, and monitor taxpayer compliance (Dreisbach, 2019).

However, only a small portion of ZRA's business operations is currently automated in tax collection, which leads to inaccurate data entry, lack of robust analytical capabilities, and outdated technology. These constraints prevent revenue loss as well as operational efficiency(Mendoza et al., 2020). The current situation of ZRA resulting from the lack of critical resources has become an obstacle for ZRA to take advantage of the capabilities of AI to significantly improve the efficiency and effectiveness of its business processes. The reliance on human processes and poor data analysis highlights the need for technological innovation, especially through AI, which is used to enhance tax collection and improve operations (Kumar et al., 2022).

1.2 Research Objectives

i. To assess employee perception of AI implementation on improving tax collection at ZRA.
ii. To examine the AI roles in tax fraud detection on improving tax collection at ZRA.

II. LITERATURE REVIEW

2.1 Theoretical Review

The Technological Acceptance Model provides support and make it easier to understand how people perceive, accept, and use any new technology that has emerged, along with showing the impact on its use (Momani, 2020). Fred

Davis developed the Technology Acceptance Model (TAM) in 1989. The model is an important model that helps people understand and cope with the use of technology, especially in strategic level. There are two factors that the TAM model considers including: Perceive Ease of Use (PEOU), which measures how useful the system is to users, and Perceived Usefulness (PU), which refers to the belief that the system will improve work performance(Davis, 1993). Based on this study, ZRA employees' opinions on the use of technology and ease of use have a significant impact on how the AI system will be used in their daily work.

Based on the findings of this study, which strongly support the theoretical assumptions discussed earlier. ZRA staff appears to have a generally positive attitude towards implementing AI in tax collection. The majority of respondents not only demonstrated a clear understanding of AI but also expressed their acceptance of AI's potential to enhance revenue performance and enhance tax compliance. This is clearly consistent with the Technology Acceptance Model (TAM), which suggests that individuals are willing to adopt and integrate a system into their daily work when they find it useful. The results also support the relevance of TAM based on second specific objective which shows the role of AI in tax fraud detection. Respondents agreed that AI represents an effective tool for detecting fraudulent activities within the tax system. These results demonstrate the effectiveness and usefulness of AI in revenue management within tax authority.

2.2 Empirical Review

2.2.1 Employees' Perceptions of Implementing Artificial Intelligence

A study conducted by Kunene(2021) in South Africa, which used a qualitative approach with sample size of 100 participants, the study found that operational managers and tax collection officers involved in tax collection department perceived AI as useful tool to improve revenue and speed up the tax collection process. This finding is in line with a study by Aggarwal (2024) which found that 85% of tax professionals agreed that AI speeds up the tax collection process, which leads to improve revenue.

However, the study of Mpofu (2024) using quantitative method which is conducted in South Africa on the Impact of Digital Transformation in Taxation. The result found that most of respondents view AI as helpful for simplifying work and promote tax compliance. But still some of employees are hesitated to accept the digital change due to fear of losing their jobs, insufficient resources as well as lack of awareness based on digital transformation campaign. Similar study with Oliveira et al. (2014) in Brazil whose findings depicted that AI was useful for assessment of risk and auditing. While Tayarani (2021) in India contradicts with other scholars since he found that AI was not successfully especial in complex scenario of tax collection, since its investments depends on high requirements.

Additionally, Puspita et al. (2024) study on Taxing Artificial Intelligence in Malaysia, using quantitative research approach with total sample size of 197 tax collectors. The results showed that some of tax collectors do not have deep understanding on AI technology; this is due to incomplete or non-existent regulation that addresses the proper use of AI in tax matters. Therefore, there is a great role to encourage the proper usage of AI in accordance with administrative regulations to bring more benefits and efficiency to the tax collection process.

2.2.2 The Role of AI in Tax Fraud detection on Improving Tax Collection

In contrast, academic studies highlight the role of AI in detecting tax fraud to improve tax collection. For example, (Murorunkwere et al., 2023) whose study conducted in Rwanda found that there is a significant relationship between the role of AI in detecting tax fraud and improving tax collection, this indicated that the use of AI tools through a controlled machine learning helped to identify tax evaders and improve revenue. Similarly, Yalamati (2023) supports Murorunkwere et.al (2023) findings by suggesting that AI tools such as machine learning increase the efficiency of work and assisting tax authorities in combating fraud and preserving the integrity of the tax system.

AI tools such as machine learning, neural networks and data mining helped to increase the efficiency of the tax collection system and detect tax fraud in a timely manner. According to the study by Nuryani et al. (2024) using one of the aforementioned AI tools, the revenue authority can improve its services and increase revenue. Although AI has many advantages, other studies show its disadvantages. For example, Oluwabusayo et al. (2024) found that human presence and supervision are important because AI often fails to identify new fraud and complex scenarios of taxation.

Also, according to Abkar and Chaihab (2024), it has been found that AI lacks transparency and error detection which leads to eroding taxpayer confidence. Despite the various benefits and challenges described by previous researchers, there is still a significant gap in understanding the impact of AI on tax collection management. This has prompted the researcher to see the need to conduct research on the potential of AI in increasing revenue. The study mainly focused on examining employee perceptions and the role of AI in detecting tax fraud. The researcher aimed to provide insight into the impact of AI, as well as prepare tax authorities to adopt their business processes with AI to improve collection processes.

III. METHODOLOGY

This study was used a quantitative research method based on a cross-sectional design where this design was chosen to capture data simultaneously and establish cause and effect relationships regarding the influence of AI on improving tax collection. The study was taken at Zanzibar Revenue Authority comprising a sample size of 193 respondents from the population of 373 employees using Yamane's formula. Through stratified sampling strategies, the researcher chose this way to ensure equal representation. Structured questionnaires using Likert scale point were used to capture primary data. Whereas validity of the factor analysis using Keiser Meyer Olkin (KMO) provides value greater than 0.80 indicates the acceptance of research instrument, while reliability tests using Cronbach's Alpha generated values greater than 0.87, indicating good internal consistency. Primary data collected were analyses in SPSS v25 using descriptive statistics which help to summarize findings and inferential statistics to test statistical significance of the findings by using multiple regression analysis. Ethics in this study were considered by obtaining permission to collect data from the Revolutionary Government of Zanzibar because ZRA is a government institution along with a consent letter for maintaining anonymity and confidentiality, to ensure integrity and honesty throughout the research process.

IV. FINDINGS & DISCUSSION

4.1 Demographic Information

The following items are considered in this study; age of respondents, gender of respondents, job title, work experience and education level of respondents as shown in Table 1 below.

Table 1

Demographic Information

Items	Category	F	%	Items	Category	F	%
Age	18-25	26	13.5	Experience	less than 1 year	26	13.5
	26-35	107	55.4		1-3 years	87	45.1
	36-45	45	23.3		4-7 years	44	22.8
	46-55	14	7.3		8-10 years	7	3.6
	56 and above	1	0.5		more than 10 years	29	15
Gender	Male	102	52.8	Education level	Diploma	29	15
	Female	91	47.2		Bachelor's degree	120	62.2
Title	Manager	26	13.5		Master's degree	42	21.8
	Operation staff	167	86.5		Other	2	1

Based on the results of the demographic profile of the respondents, the demographic profile directly matches the objective of this study which is to assess the employees' perception of AI towards improving tax collection at ZRA. A large number of young people (56%) between the ages of 26-35 years showed readiness for technological change, while 86.5% of the respondents are employees directly involved in tax collection. In addition, the education level of the respondents shows their high ability to evaluate and accept the potential of AI. According to Maan et.al (2020), these characteristics provide valuable insight by strengthen their perceptions and support the objective of the study.

4.2 Descriptive Statistics for Employees' perceptions

The researcher aimed to assess employees' perceptions toward Artificial Intelligence. The findings presented in Table 2 shows the employees' views regarding the integration of AI within the ZRA, particularly in the area of tax collection.

Table 2

Employees' Perceptions of AI Adoption at ZRA

Factor	Percent	Interpretation
Awareness of AI in tax collection	76.2%	High level of awareness of AI use cases within ZRA
Ease of use (perceived)	81.9%	Strong agreement that AI implementation would help improve tax collection
Usefulness (perceived)	66.8%	Moderate confidence in usability of AI-based systems
Data security confidence	69.4%	Confidence that AI can protect taxpayers' information
Trust in AI systems	78.8%	Strong support for adopting AI at ZRA

As shown in Table 2, the following factors were used to assess how employee's perception could contribute to improve tax collections: awareness, ease of use, usefulness, data security, and trust in AI systems. The awareness of AI in tax collection holds 76.2% of respondents, which indicates a high level of understanding of AI. From the ease-of-use perspective, 81.9% of respondents strongly agreed that the implementation of AI would help ZRA to improve tax

collection. Regarding the usefulness of AI-based tax collection systems, 66.8% expressed moderate confidence in the usability of the system. For data security and to protect taxpayers' information, 69.4% expressed confidence in AI. In the aspect of trust,78.8% of respondents showed great support and belief in the AI adoption at ZRA.

These findings conclude that most respondents have positive views towards the adoption of AI to improve the tax collection process, which provides a supportive environment for ZRA. These findings, supported by Mpofu (2024) in South Africa, depicted that employees perceive AI as helpful in simplifying work and boosting tax collection. Nevertheless, the findings contradicted the study by Puspita et al. (2024) in Malaysia, whose findings depicted that most tax professionals lack a good understanding on the implications of AI technology in tax administration. This situation underscores the need for increasing awareness campaigns on AI adoption in tax collection processes through various activities such as seminars, workshops, and in-house training, especially for IT and business operational professionals.

4.3 Descriptive Statistics for AI's Role in Detecting Tax Fraud

The researcher aimed to investigate how the Artificial Intelligence can be used in detecting tax fraud. The findings presented in Table 3 shows the perception on AI regarding the tax fraud detection within the ZRA.

Table 3

Perceptions of AI Capabilities for Fraud Detection and Monitoring

Factor	Percent	Interpretation
Data quality requirement	79.3%	Agreement that AI relies on high-quality, accurate data to detect fraud
Anomaly detection capability	71.0%	Agreement that AI can correctly detect anomalies
Real-time monitoring	76.0%	Strong agreement that AI monitors behaviors in real time to flag fraud
Instant alerts for suspicious transactions	77.2%	Agreement that AI improves compliance via instant alerts

The following factors were used to examine how AI could contribute to detect tax fraud: data quality, adaptability, anomaly detection as well as real time monitoring capabilities. According to the data, large proportions of respondents 79.3%, agreed that the artificial intelligence system relies on high-quality and accurate data for detecting tax fraud. This indicates that the respondents understand the value of data quality which is highly required in AI based system.71% of the respondents agreed that AI is capable of correctly detecting anomalies. This determines a high level of confidence in AI monitoring and detection capabilities.76% of the respondents strongly agreed that AI has tendency to monitor taxpayer behaviors in real time and quickly identify fraudulent activities. In addition, 77.2% of the respondents accept that AI can improve tax compliance by providing instant alerts on mistrustful transaction.

The findings show a generally positive perception of AI role on improving tax collection, particularly in fraud detection and compliance monitoring. Most of the respondents agreed that AI supports tax fraud detection. This findings consistent with studies by Murorunkwere et al. (2023) and Yalamati (2023) in Rwanda and Nuryani et al (2024) in Malaysia whose findings show that integrating AI model radically enhances the detection of tax fraud in the tax collection system. These technologies provide tax authorities with useful instruments to enhance tax collection and enforce tax compliance.

4.4 Descriptive Statistics for Tax Collection Improved

The researcher aimed to investigate how the tax collection is improved within the ZRA. The findings were presented in Table 4.

Table 4

Perceptions of AI's Contribution to Tax Collection Outcomes

Factor	Percent	Interpretation
Compliance rate	81.9%	Agreement that AI increases compliance through accurate assessment, reduced fraud, and stronger monitoring
Performance rate	76.2%	High acceptance and willingness to adopt AI to improve revenue performance
Cost reduction	66.8%	Moderate confidence that AI simplifies operations and lowers admin costs
Data security / detection rate	69.4%	Belief that AI ensures data security and improves fraud detection
Overall trust/support	78.8%	Strong confidence and support for AI to improve tax collection

The following factors were used to measure how AI would help ZRA to improve its revenue through the integration of AI technology within tax collection system. These factors: compliance rate, performance rate, cost reduction and detection rate.

The result showed that the use of AI has a positive impact on improving tax collection in the ZRA. A large number of respondents 81.9% agreed that AI increases compliance by improving accuracy in tax assessment, reducing fraud and strengthening compliance monitoring. Furthermore, 76.2% expressed a high level of acceptance on AI in tax

collection, indicating a willingness to adopt AI systems that would improve performance in revenue collection. Regarding the cost reduction rate on AI-based tax collection systems, 66.8% expressed moderate confidence in their ability to simplify operations and contribute to reducing tax administration costs. In addition, 69.4% believed in AI in ensuring data security and increasing the detection rate of fraudulent activities. Overall, 78.8% expressed strong confidence and support for the use of AI technology, confirming that AI plays a key role in improving tax collection in the ZRA. This findings align with the study by Rahman et al. (2024) which confirms that innovative technologies such as AI are the key factor in supporting tax administration process by increasing tax compliance, reducing work inefficiency as well as helping to lower operational cost.

4.5 Analysis of Correlation

Correlation analysis was performed to determine how strongly the variables were associated (Franzese & Iuliano, 2018). According to Table 5, the results showed that there is a correlation between the independent variables and the dependent variable under study since r ranges from 0.714 and 0.849 at $p<0.01$.

Table 5

Inter Correlations

Variables	Employees' perceptions	AI's Role in Detecting Tax Fraud	Tax Collection Improved
Employees' perceptions	1	.737**	.827**
AI's Role in Detecting Tax Fraud	.737**	1	.849**
Tax Collection Improved	.827**	.849**	1
Number of participants	193	193	193

The correlation analysis depicted a strong and statistically significant positive relationship among the key variables examined in the study. Particularly, employees' perceptions of implementing Artificial Intelligence show a very strong positive correlation with improved tax collection ($r = .827$, $p < .01$), indicating that positive attitudes towards AI are closely linked to improved tax revenue. These results supported by Kunene (2021) who found that operational managers and tax collection officers involved in tax collection department perceived AI as a useful tool to improve revenue and speed up the tax collection process.

In addition, there is significant evidence of a strong positive correlation between improved tax collection and AI's role to detect tax fraud ($r = .849$, $p < .01$), these findings aligned with Murorunkwere et.al (2023) whose study conducted in Rwanda. This demonstrates the notable impact of AI in identifying and reducing fraudulent activities. These findings reinforce the argument that improvements in Zanzibar Revenue Authority's tax collection are driven not only by employee perceptions but also by the effectiveness of AI in identifying tax fraud (Nembe et al., 2024).

4.2 Regression Analysis

A statistical technique is employed to examine how a dependent variable responds to changes in one or more independent variables (Franzese & Iuliano, 2018). This approach not only reveals the strength and direction of each predictor's influence but also evaluates how effectively these predictors account for variations in the dependent variable. Key components of the analysis include ANOVA, which tests whether the overall relationship observed is statistically significant, and measures like R and R Square, which indicate the proportion of variance in the outcome explained by the model. Additionally, the coefficients demonstrate the specific impact of each individual predictor on the dependent variable.

4.2.1 Multiple Linear Regression Analysis

Table 6, 7 and 8 presents multiple linear analysis findings.

Table 6

Inter Correlations

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.919[a]	.845	.843	.297

Predictors: (Constant), employees' perceptions, AI's role in detecting tax fraud

The model summary shows a strong and statistically significant multiple linear regression model for predicting tax collection improvement based on the selected independent variables. The model yielded an R value of 0.919, indicating a very strong positive relationship between the actual and predicted results. The R Square value of 0.845 means that 84.5% of the variance in tax collection improvement is explained by the model; indicating high predictive power.

The adjusted R Square is 0.843, which confirms that the model remains reliable even when accounting for the number of predictors. The model's predictions appear to be quite accurate, as indicated by the standard error of 0.297. The analysis of regression model clearly depicted that the improvement of tax collection in the Zanzibar Revenue Authority is greatly impacted by independent variables, most likely employee perceptions of AI and its effectiveness in identifying tax fraud.

Table 7

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	91.181	3	30.394	344.612	.000[b]
	Residual	16.669	189	.088		
	Total	107.850	192			

a. Dependent Variable: Tax Collection Improved

b. Predictors: (Constant), employees' perceptions, AI's role in detecting tax fraud

Table 7 shows that the regression mode; largely explains the changes in tax collection improvement. This model accounts for a large amount of the total variance (107.85) with 91.18 due to the independent variables; employees' perception of AI and role of AI in fraud detection, and 16.67 remaining unexplained. The high F value (344.612) and p value of .000 indicate that the model fits the data very well since the p-value is less than 0.05. In general, the results indicate that these factors together have a significant contribution to improving tax collection in the Zanzibar Revenue Authority.

Table 8

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.028	.127		-.222	.825
	Employees' Perceptions	.322	.042	.344	7.689	.000
	AI's Role in Detecting Tax Fraud	.366	.054	.340	6.747	.000

Dependent Variable: Tax Collection Improved

From: $Y=\beta_0 + \beta_1 X_1 + \beta_2 X_2 + \varepsilon$

where

Y = Dependent variable (tax collection improved), β_0 = Interrupt (time constant), β_1, β_2 = Coefficients of independent variables, X_1, X_2 = Independent variables (employee's perception, AI fraud detection) and ε = Error term (difference between observed and predicted values),

$Y= -0.028+0.322X_1+0.366X_2+ 0.297$

Table 8 shows that all variables; employee perceptions of AI (0.322) and the role of AI in detecting tax fraud (0.366) positively influence improvements in tax collection. Since all p-values are .000, these effects are statistically significant. The standardized beta indicates that employee perceptions have high influence, followed by the role of AI in detecting fraud. Therefore, employee perceptions and the role of AI in detecting tax fraud can significantly increase tax collection performance at the Zanzibar Revenue Authority.

4.3 Discussion

According to the results of this study, the findings directly support the existence of Technological Acceptance Model (TAM) which emphases on two factors: Perceived Usefulness (PU) and Perceived Ease of Use (PEOU). Thus, the study depicted that ZRA employees seem to have a positive perception towards implementing AI in tax collection. The majority of respondents not only showed a wider understanding of AI but also expressed their acceptance of AI regarding its potential to enhance revenue performance. This is clearly consistent with Perceive Usefulness of TAM which suggests that individuals are willing to adopt and integrate AI system into their daily work when they find it useful. These results aligned with high standardized beta coefficient of (0.322) which indicates that employee perceptions have a significant influence on improving tax collection.

Furthermore, the results of standardized beta coefficients of (0.366) indicates the role of AI in detecting tax fraud positively influence improvements in tax collection. This analysis support component of TAM which is PEOU that used to determine the role of AI in detecting tax fraud, as respondents agreed that AI is an effective tool which is easy to use for detecting fraudulent activities. Overall, these results demonstrate the effectiveness and usefulness of AI in tax management within tax authority.

V. CONCLUSION & RECOMMENDATIONS

5.1 Conclusion

To conclude, this study focused on examining the impact of artificial intelligence (AI) on improving tax collection at Zanzibar Revenue Authority (ZRA), supported by the following specific objectives: To assess employee's perceptions on the implementation of Artificial Intelligence on improving tax collection at Zanzibar Revenue Authority. To examine the role of AI in detecting tax fraud on improving tax collection at Zanzibar Revenue Authority, the participants of this study were asked their views on each of these specific objectives.

The results of the study indicated that most participants have a good understanding on the concept of artificial intelligence (AI) and are willing to incorporate it into their daily routine because they believe it can improve and encourage accurate tax collection. This positive attitude facilitates the integration of AI technology into the ZRA tax process. Regarding the role of AI in identifying tax fraud activities, participants noted that AI technologies are used more accurately beyond traditional methods in detecting data leakage and tax evasion.

5.2 Recommendations

It is recommended that; ZRA urgently needs to invest in AI to help improve revenue performance, this investment will require a robust digital infrastructure with strong data security and privacy measures while adopting a phased implementation strategy. To avoid failure, it is advisable to start with pilot projects while carefully selecting suitable AI technologies for good integration with existing systems.

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