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Research Article

The Moderating Role of IFRSs Alignment on the Relationship between Modernization Influences and Effective Digital-Resources Accounting Information System

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Abstract

This paper is set to examine the Moderating role of IFRSs Alignment on the Relationship between Modernization Influences and Effective Digital-Resources Accounting Information System. The data were collected from 55 entities, with a total of 381 respondents. Descriptive and partial least square path modelling were used for data analysis with the aid of SmartPLS3.0. It was found that the direct relationship between Technological Advancement (TA) and Currency Innovation (CI) was positive and significant with Digital-Resources Accounting Information System (DRAIS). The relationship between Economic Transformation (ET) and DRAIS was insignificant. The addition of the IFRSs alignment as a moderator has strengthened the relationship between currency Innovation and DRAIS. Furthermore, it does not moderate the relationship of both Technological Advancement as well as Economic Transformation with DRAIS. The findings imply that the IFRSs' alignment plays a major role in provision of direction on the relationship between modernization influences with DRAIS. The IFRSs provide framework in preparing a wide and acceptable DRAIS. These findings highlight the importance of technological advancement and currency innovation in driving effective digital accounting systems, while also underscoring the need for IFRSs alignment to strengthen the impact of modernization efforts, particularly in the context of currency innovation.

Keywords: IFRSs alignment, Technological Advancement, Economic Transformation, Currency Innovation, Effective DRAIS

Introduction

Digital resources broadly refer to any assets, tools, or content that exist in digital form and are used to facilitate economic, informational, or operational activities across sectors (OECD, 2019). These may include software systems, digital-platforms, electronic documents, and digitally-native assets. Within the rapidly evolving digital-economy, a more specialized form of digital-resources has emerged, especially those powered by distributed ledger technologies (DLTs) such as blockchain. These include cryptocurrencies, utility tokens, stablecoins, security tokens, non-fungible tokens (NFTs), and other cryptographic digital-units designed for specific functions (Buckley et al., 2016; Nagaraj et al., 2018). While these digital-resources may resemble fiat currencies in certain ways, they often lack universal acceptance and the full monetary functions of a traditional-currency (fiat-currency), particularly as a store of value or unit of exchange due to their high volatility and limited regulatory integration (Dafri & Al-Qaruty, 2023). However, their design emphasizes attributes such as acquirability (through earning or purchase), transferability (across borders), and redeemability (ease of conversion), which position them as central instruments in digital-economic activities (Hileman & Rauchs, 2017). Understanding the role of these digital-resources, particularly in accounting and financial systems, is crucial in the context of digital transformation and modernization efforts.

Consequently, the complex features of digital-resources, their operating technologies and their divergence considerations in different jurisdictions, has led to ineffectiveness on the existing accounting guidance (Nagaraj et al., 2018)

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The act of digital-resources to serve different purposes lead various countries to utilize them in different activities, including source of revenue, taxes and transaction purposes. For example, Venezuela has considered digital-resources as medium of exchange similar to her fiat-currency trying to overcome inflation, South Africa has considered them as commodity for tax purposes and USA has considered them in different perspectives including cash and cash equivalent, financial instruments and similar to other derivatives such as futures (Yee et al., 2020). The different perspectives in the use of digital-resources, their saving purposes, their complex features and their associated technologies has led to ineffectiveness on the existing accounting guidance (Stancheva-Todorova, 2019).

The existence of conflicting perspectives relating to digital-resources has led to discussions and debates around the global (Yee et al., 2020). However, in some countries especially from developed world, they are considered as constructive innovations compared to Less Developed Countries (LDCs) (Nkwabi & Mboya, 2019). Most of these LDCs have considered them as destructive innovations. This has led the developed countries to explore their associated opportunities compared to LDCs including Tanzania that has opted to ban their operations (Mutiso & Maguru, 2020). The digital-resource business is expected to grow to over $176 billion by 2025 and exceed $3.1 trillion by 2030 (Nagaraj et al., 2018). In developed countries like the US, UK, Russia, and Japan, research and businesses are ongoing, while Africa has limited research. Countries like South-Africa, Nigeria, and Kenya are serious about digital-resource businesses (Moosa, 2019).

Therefore, establishing an effective Digital-Resources Accounting Information System (DRAIS) is essential for mitigating conflicting perspectives that render existing accounting guidance less effective and limited in accommodating digital-resources (Nagaraj et al., 2018). An effective DRAIS refers to a system capable of collecting, recording, and processing transactions involving digital-resources in a manner that ensures transparency, accuracy, and compliance (Hileman & Rauchs, 2017). While multiple modernization influences such as interoperability, cybersecurity, legal compliance, and system integration are increasingly recognized in the literature and practice as critical for shaping digital-systems, this study focuses specifically on Technological Advancement (TA), Economic Transformation (ET), and Currency Innovation (CI). This focus is informed by prior empirical studies (Nagaraj et al., 2018; Stancheva-Todorova, 2019; Dorofeyev et al., 2018) which underscore these three as foundational drivers in the adoption and process of preparing digital-accounting infrastructures. Additionally, their relevance is theoretically supported by the Unified Theory of Acceptance and Use of Technology (UTAUT), which has been widely used to examine the diffusion and acceptance of innovations like TA, ET, and CI in accounting and financial systems (Venkatesh et al., 2003).

On the other hand, in order to establish an effective DRAIS, the consideration of International Financial Reporting Standards (IFRSs) alignment as a moderating factor is significant. IFRSs are not only a set of globally recognized accounting principles but also serve as a foundational framework for consistency, comparability, and transparency in financial reporting (Curtis & Lehner, 2019). In the context of digital transformation, aligning modernization influences with IFRSs ensures that innovations such as technological advancement, economic transformation, and currency innovations are integrated into accounting systems in a structured and standardized manner. This alignment may strengthen the relationship between modernization influences and DRAIS by providing clarity, reducing interpretive inconsistencies, and ensuring that digital transactions are appropriately captured and reported. Without such alignment, modernization efforts may lead to fragmented or non-compliant accounting practices, especially in emerging digital domains.

The significance of IFRSs alignment as a moderator is also supported by the Double Entry Bookkeeping Theory (DEBT), which underpins the logic of structured recording of transactions and guides the integration of new digital elements into existing accounting systems. Therefore, this study examines the moderating role of IFRSs alignment in the relationship between modernization influences and effective DRAIS, particularly in the context of less developed countries (LDCs) such as Tanzania, where regulatory integration and digital adoption are still evolving. This study fills a gap by examining how IFRSs alignment moderates the relationship between modernization influences and effective DRAIS, a topic largely overlooked in the context of developing countries. Focusing on Tanzania, it highlights the importance of regulatory alignment in shaping digital accounting systems.

The paper is structured to present the literature and theory, outline the methodology, report key findings, and conclude with practical implications and future research directions.

Literature Review

Theoretical Perspective

This study is underpinned by two complementary theories, namely the Unified Theory of Acceptance and Use of Technology (UTAUT) and the Double Entry Bookkeeping Theory (DEBT). UTAUT, developed by Venkatesh et al. (2003), explains how innovations are adopted and accepted. It informs this study by supporting the direct relationships between modernization influences such as Technological Advancement, Economic Transformation, and Currency Innovation with the effectiveness of Digital-Resources Accounting Information Systems (DRAIS). This is particularly relevant in less developed countries, where adoption is constrained by limited infrastructure, economic capacity, and readiness. However, UTAUT does not account for institutional factors such as accounting standards that may influence these relationships.

To address this gap, the Double Entry Bookkeeping Theory (DEBT) is applied to justify the moderating role of IFRSs alignment. Although DEBT originated in the early thirteenth century, it remains fundamental to contemporary accounting practice and forms the basis for principles like the IFRSs. IFRSs alignment offers a structured framework that can enhance the link between modernization influences and effective DRAIS by ensuring transparency, comparability, and consistency in accounting for digital-resources. Therefore, combining UTAUT and DEBT allows this study to capture both behavioral and regulatory dimensions influencing the effectiveness of DRAIS as illustrated in figure 1.

Empirical Literature Review and Formulation of Hypothesis

Technological Advancement

Technological advancement has triggered the emergence of digital-technologies, which expose various gaps in existing accounting guidance (Buckley et al., 2016). These gaps have challenged conventional accounting theories, standards, and regulatory practices, making them less effective in accommodating digital-resource transactions (Bidwell & Macdonald, 2018). Prior studies such as Boonpheng et al. (2021) and Stancheva-Todorova (2019) revealed that digital technologies enhance operational efficiency by saving time, reducing cost, and increasing speed and confidence in management functions. Similarly, Nagaraj et al. (2018) emphasized their role in improving stakeholders' decision-making. However, these studies did not consider the accounting system's readiness, especially its ability to effectively capture and report digital-resources through a robust framework like DRAIS.

The Unified Theory of Acceptance and Use of Technology (UTAUT) provides theoretical grounding by explaining how individuals and institutions adopt and accept new technologies such as those driving DRAIS. At the same time, the Double Entry Bookkeeping Theory (DEBT) underpins the need for system compatibility with accepted accounting principles, implying that technology must integrate with established accounting structures to be effective. Therefore, the combined theoretical perspective and empirical gaps justify the formulation of the following hypothesis:

H1: There is a positive relationship between technological advancement and the effectiveness of the Digital-Resources Accounting Information System (DRAIS).

Economic Transformation

Empirical studies have shown that economic transformation, particularly through the emergence of the digital-economy, has significantly reshaped business structures and operations (Bygren, 2016). This transformation is characterized by the shift from physical to digital operations, greater reliance on brainpower and information, and increased engagement in online transactions (Abad-Segura et al., 2021). Studies by Nagaraj et al. (2018), Bygren (2016), and Yee et al., (2020) have consistently found that such digital-economic trends positively influence the effectiveness of accounting systems like DRAIS, enhancing decision-making, speed, and cost-efficiency. However, the digital economy also creates accounting gaps, such as difficulties in determining appropriate inflation measures, interest rates, and valuation methods for digital-resources (Ali et al., 2018; Bidwell & Macdonald, 2018), necessitating more adaptive systems.

The Unified Theory of Acceptance and Use of Technology (UTAUT) explains how users adopt digital tools in response to shifting economic environments, supporting the argument that digital-economy developments drive the need for an effective DRAIS. Meanwhile, the Double Entry Bookkeeping Theory (DEBT) offers the foundational framework upon which accounting systems are structured, making it essential for integrating new digital-economic realities into accounting practices. Together, the theories support the idea that economic transformation influences both the demand for and structure of DRAIS. Thus, the following hypothesis is proposed:

H2: There is a positive relationship between economic transformation and the effectiveness of the Digital-Resources Accounting Information System (DRAIS).

Currency Innovation

Currency innovation refers to the development and implementation of new forms of currency or mediums of exchange that aim to enhance economic activity and reduce transactional barriers (Abad-Segura et al., 2021). This shift has resulted in the emergence of digital-resources such as cryptocurrencies and other virtual-resources, which have generated discussions on their potential to replace traditional fiat currencies (Dorofeyev et al., 2018). Empirical studies by Dorofeyev et al. (2018), Nagaraj et al. (2018), and Hubbard, (2023) found that these innovations contribute positively to the effectiveness of accounting systems by enabling faster, more secure, and efficient transactions. However, digital-resources bring unique challenges to accounting standards, especially in areas related to classification, recognition, measurement, and disclosure (Nagaraj et al., 2018). These challenges reveal gaps in existing accounting frameworks, creating a demand for systems that are specifically prepared to accommodate varieties of digital-resources.

The Unified Theory of Acceptance and Use of Technology, developed by Venkatesh et al., explains how users accept and implement innovations based on factors such as performance expectations and facilitating conditions. This theory supports the view that the adoption of digital-resources influences the demand for effective accounting systems such as DRAIS. The Double Entry Bookkeeping Theory, which forms the foundation of traditional accounting, reinforces the need for structured systems to ensure transparency, consistency, and accuracy in recording economic transactions. As digital-resources represent a new form of economic resource, DEBT provides the basis for preparing accounting systems that can uphold these principles. Based on these theoretical insights and the empirical evidence, the following hypothesis is proposed:

H3: There is a positive relationship between currency innovation and the effectiveness of the Digital-Resources Accounting Information System (DRAIS).

Moderating Effect of IFRSs Alignment

International Financial Reporting Standards (IFRSs) provide a comprehensive framework that governs the preparation of accounting and financial reports. This study positions IFRSs alignment as a moderating variable to explore whether the adherence to these standards strengthens the relationship between technological advancement, economic transformation, and currency innovations, and the effectiveness of the Digital-Resources Accounting Information System (DRAIS). The role of IFRSs alignment as a moderator is critical, as empirical research highlights the importance of standard-setting frameworks in enhancing the adoption and implementation of accounting systems, particularly in environments involving new technological and economic changes (Hubbard, 2023; Moosa, 2019; Morozova & Tarasova, 2023). These studies suggest that alignment with IFRSs ensures the reliability, comparability, and credibility of DRAIS, particularly in managing the complex challenges posed by digital-resources.

The Double Entry Bookkeeping Theory (DEBT) supports this argument by providing the foundational structure for modern accounting, as reflected in the equation Assets = Liabilities + Equity. IFRSs are derived from this theory and are essential for maintaining consistency in accounting practices, especially as digital-resources become integrated into accounting systems. Therefore, aligning DRAIS with IFRSs ensures that digital-technologies, digital-economies, and currency innovations are accurately classified, recognized, measured, and disclosed, contributing to more effective accounting and financial reporting together with decision-making.

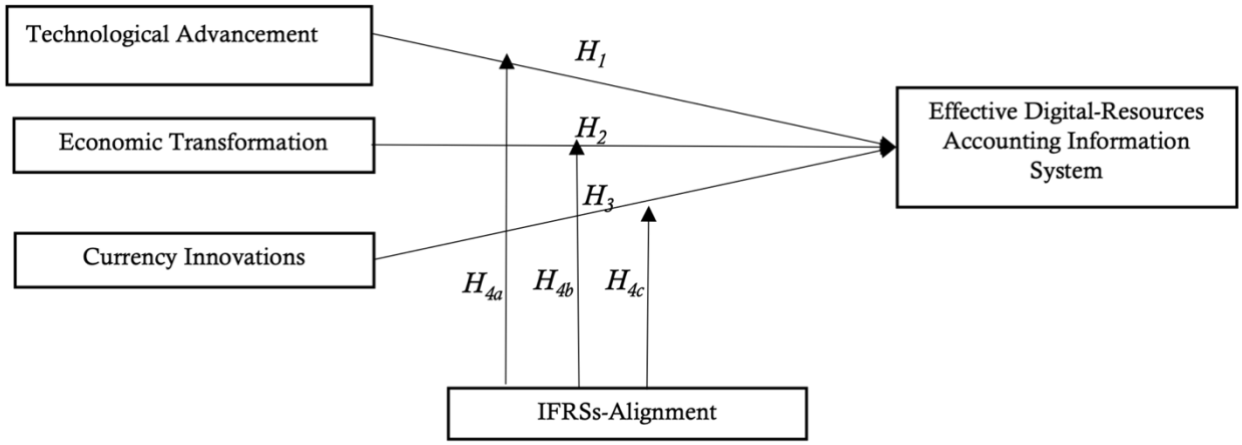
Given these considerations, all the relationships between modernization influences and DRAIS are expected to be strengthened by IFRSs alignment. For instance, technological advancements benefit from IFRSs alignment, as these standards provide a solid foundation for managing new digital technologies within the accounting system. Similarly, economic transformation and currency innovation are likely to be positively influenced by IFRSs alignment, as the framework ensures that the evolving nature of digital-economies and currencies is appropriately reflected in accounting practices. By enhancing the credibility and acceptance of DRAIS, IFRSs alignment will support the smooth integration of these modernization influences into effective accounting systems. Therefore, the following hypotheses are formulated with a positive directional expectation:

H4a. *IFRSs alignment has a positive moderating role on the relationship between Technological Advancement and DRAIS.*

H4b. *IFRSs alignment has a positive moderating role on the relationship between Economic Transformation and DRAIS.*

H4c. *IFRSs alignment has a positive moderating role on the relationship between Currency Innovations and DRAIS.*

Figure 1: **The study framework**



Source: Researcher (2023)

Methodology

This study was conducted in Tanzania and focused on organizations significantly influenced by digital-resources. These included banking institutions, auditing firms, digital-resource-based businesses, mobile service providers, and professional accounting bodies. The selection was based on their strategic roles in digital financial transactions, accounting practices, and regulatory oversight. Criteria for inclusion considered the organizations' exposure to digital technologies, use of digital-accounting systems, and contributions to financial reporting and standard-setting. This ensured that selected entities were well-positioned to provide relevant insights into the effectiveness of a Digital-Resources Accounting Information System (DRAIS). The target population comprised 69 entities with a total of 29,774 employees, compiled from publicly available data and official reports, as summarized in Table 1. A simple random sampling technique was employed to ensure equal representation and minimize bias. Based on Yamane (1967) formula for sample size determination at a 5% margin of error, the required minimum sample was:

$$n = \frac{297741}{1 + 29774(0.05)^2} = 395$$

Data were collected from 381 respondents, reflecting a 96% response rate. Respondents included financial managers, accountants, auditors, risk managers, economists, ICT officers, and digital-resource practitioners, professionals with relevant expertise in the application and oversight of digital-accounting systems. Data collection relied on a structured questionnaire, selected for its efficiency in obtaining targeted information and supporting the analytical process.

Table 1: Sampling Framework of Respondents

Sn	Category	No. of entities	No. of employees	Entities Responded	Sources	Reasons
1	BoT& Commercial Banks	48	17432	34	(BoT, 2019); (EY, 2021)	Decisions affected by Digital-resources
2	NAOT & Top 4 International Audit Firms in Tanzania	5	1277	5	(BoT, 2025)	Approved to audit banks in Tanzania
3	Top 5 World Best digital-resources' business entities	5	6416	5	(Perkins, 2021)	High practical experience in digital-resources
4	Mobile companies	6	4409	6	(TCRA, 2024)	Having mobile-money systems bridging fiat-currency & digital-resources
5	NBAA & International accounting bodies in Tanzania	5	240	5	(Ionescu-Feleagă et al., 2022)	High contributors to setting national and international accounting standards
Total population		**69**	**29774**	**55**		

Source: Researcher (2023)

Study Variables and Measurements

Independent variables (TA, ET & CI) were examined, the IFRSs alignment as the moderating variable and DRAIS served as the dependent variable. Indicators were measured on a six-point Likert scale (ranging from 1= strongly disagree, 2= disagree, 3= slightly disagree, 4= slightly agree, 5= agree and 6 = strongly agree) as explained in Table 2. A six-point Likert scale was used for capturing more nuanced opinions and reducing bias responses by removing neutral opinions and fitting with the nature of data and population employed (Hair et al., 2017).

Analytical Models

The study used the analytical model which was

Model 1: $DRAIS = \beta_{1}o + \beta_{11}TA + \beta_{12}ET + \beta_{13}CI + e$

Model 2: $DRAIS = \beta_{2}o + B_{21}TA*IFRSs + B_{22}ET*IFRSs + B_{23}CI*IFRSs + e$

Where;

Digital-Resources Accounting Information System (DRAIS) represents the dependent variable and International Financial Reporting Standards (IFRSs) serve as the moderating variable. The independent variables include Technological Advancement (TA), Economic Transformation (ET), and Currency Innovations (CI). In the model specification, β_{10} and β_{20} denote the coefficients for the intercept terms, while β_{11}, β_{12}, β_{13}, β_{21}, β_{22}, β_{23}, and β_{24} represent the coefficients for the slope parameters of the respective independent and interaction terms. The symbol e stands for the error term, which accounts for the unexplained variance in the model.

Table 2: Operationalization, Measurements of Variables and Model

Type	Variable	Operational definition	Indicators	Measurements	Source
Dependent Variable	Effective DRAIS	Refers to a digital-resources' system of collecting transactions, record-keeping, and reporting for various users.	Free-from-error; Predictive; complete; Verifiable; Timely; Comparable; Confirmable; Immaterial; Neutral and Understandability	6-Point Likert scale	(Alasbahi & Ishwara, 2021).
Independent Variable	Technological Advancement	Refers to the revolving process of innovation, and diffusion of better technology in undertakings.	Cost, time, Speed, Management, Confidence, and Efficacy	6-Point Likert scale	(Boonpheng et al.., 2021)
	Economic Transformation	Refers to changes and adopting means that guide business and efficient use of resources.	Flexibility; Intangible mobility; Backbone operability; Business architectural change; Financial services unfamiliarity; Measuring metrics efficiency & cultural management change	6-Point Likert scale	(Bygren, 2016)
	Currency Innovations	Refers to the creation, development, and implementation of a better medium of exchange.	Divisibility; Portability; Durability; Recognizability; Standardization; Security; Intrinsic value; Integration; Designing criteria; Function	6-Point Likert scale	(Dorofeyev et al., 2018)
Moderating Variable	IFRSs alignment	Refers to a process of refinement, iteration, clarification, and issuing set of standards by IASB, that guiding accounting and financial reports while increasing accuracy, reliability, consistency, transparency, and comparability.	Presentation of Financial statement; inventories; cash and cash equivalent; Recognition measurement of the financial instrument; Intangible assets; revenue from contracts with customers; investment property; Accounting errors corrections & conversion effects	1 stands for "strengthening" and 2 stands for "weakening"	(Hubbard, 2023)

Empirical Analysis and Results

Respondents Profile

The survey involved 381 respondents, with 192 (50.4%) being female, and the majority holding bachelor's, master's, CPA, ACCA, or PhD qualifications. The age distribution was dominated by individuals between 41-50 years. Respondents came from diverse fields such as accounting (116 or 30.4%), economics (96 or 25.2%), mobile financial services (64 or 16.7%), and auditing (43 or 11.2%). These demographics indicate that the respondents had substantial experience and familiarity with digital-resources, particularly in accounting-related decision-making, suggesting their competence in understanding the role of digital technologies, digital-economy and digital-resources in accounting and financial systems.

Statistical Procedures and Reliability Measurement

PLS-SEM with the aid of Smart-PLS 3.0 was employed to evaluate the reliability of the measurement model. The results from the reliability tests; Cronbach's Alpha (CA), Composite Reliability (CR), and Average Variance Extracted (AVE), showed values above the recommended thresholds. Specifically, CA and CR exceeded 0.70, demonstrating good

good internal consistency, while AVE was greater than 0.50, indicating acceptable convergent validity for all constructs (Hair et al., 2017). These results confirm the robustness of the measurement model, ensuring that the constructs used are reliable and valid for testing the study's hypotheses, as shown in Table 3.

Table 3. Assessments of reliability of measurement model

Latent Variable	Indicator	Loadings	CA	CR	AVE
TA	TA1	0.714	0.897	0.921	0.661
	TA2	0.81			
	TA3	0.818			
	TA4	0.742			
	TA5	0.783			
	TA6	0.768			
ET	ET2	0.724	0.906	0.928	0.684
	ET3	0.746			
	ET4	0.801			
	ET5	0.785			
	ET6	0.856			
	ET7	0.835			
CI	CI4	0.779	0.928	0.94	0.617
	CI5	0.841			
	CI6	0.84			
	CI7	0.82			
	CI8	0.856			
	CI9	0.789			
IFFRSs Alignment	IFRS1	0.791	0.879	0.82	0.785
	IFRS2	0.778			
	IFRS7	0.845			
	IFRS32	0.791			
	IFRS9	0.727			
	IFRS38	0.844			
	IFRS15	0.8			
	IAS40	0.785			
	IAS8	0.764			
	IAS9	0.794			
DRAIS	DRS1	0.76	0.972	0.975	0.798
	DRS2	0.94			
	DRS3	0.908			
	DRS4	0.909			
	DRS5	0.924			
	DRS6	0.934			
	DRS7	0.937			
	DRS8	0.912			
	DRS9	0.945			
	DRS10	0.94			

Source: Researcher (2023)

Validity Measurement

The validity of the measurement model was first assessed using the Fornell-Larcker criterion. According to the criterion, the square root of the Average Variance Extracted (AVE) for each construct must be greater than the correlation between that construct and all other constructs. In Table 4, it can be observed that the diagonal values (representing the square root of AVE for each variable) are all above the threshold of 0.7, which indicates good discriminant validity for the constructs. The Heterotrait-Monotrait (HTMT) ratio was also run to further assess discriminant validity. The HTMT values in Table 5 show that all variables have values below the recommended threshold of 0.85, further confirming that the constructs are distinct and not highly correlated with each other. This satisfies the ideal threshold level for HTMT as suggested by Voorhees et al. (2016).

Table 4: Fornell-Larker Results

Variable	TA	ET	CI	IFRSs	DRAIS
Technological Advancement	0.821			.	
Economic Transformation	0.563	0.912			
Currency Innovations	0.420	0.508	0.792		
IFRSs Alignment	0.400	0.390	0.431	0.834	
DRAIS	0.211	0.478	0.738	0.611	0773

Source: Researcher (2023

Table 5: Heterotrait-Monotrait Ratio (HTMT) Results

Variable	TA	ET	CI	IFRSs	DRAIS
Technological Advancement	0.201				
Economic Transformation	0.300	0.722			
Currency Innovations	0.521	0.521	0.745		
IFRSs Alignment	0.321	0.301	0.439	0.727	
DRAIS	0.335	0.283	0.543	0.209	0.781

Source: Researcher (2023).

Evaluation Criteria for the Structural Model

This study evaluated the structural model used of PLS-SEM by focusing on assessing the significance and relevance of path coefficients, followed by the model's explanatory and predictive power. The results indicated that TA had a weaker positive (0.274) estimate (β) to DRAIS. Second, ET had a weaker negative (-0.048) estimate (β) to DRAIS. Third, CI had a strong positive (0.737) estimate (β) to DRAIS as shown in Figure 2 and Table 7. Also, it was found that the IFRSs alignment had a positive estimate (β) 0.047 (strengthening) on the relationship between TA and DRAIS. Second, IFRSs alignment had a positive estimate (β) 0.033 (strengthening) on the relationship between ET and DRAIS. Third, IFRSs alignment had a positive estimate (β) 0.178 (strengthening) on the relationship between CI and DRAIS as shown in Figure 3 and Table 8.

Furthermore, the study assessed the predictive power by starting with R^2 which measures the model explanatory power. It was found that R^2 was 0.384 (38.4%), implying that the three predictor variables (TA, ET, and CI) explain the DRAIS at 38.4%, above the minimum value of 19%. Second, the adjusted R^2 measures the adjusted predictive power. The Adjusted R^2 is 0.379 (37.9%) in measuring the predictive power to imply that it increases when a new term improves the model more than it would be expected and vice versa. Thus, the model was acceptable for further analysis because it was within the acceptable range of 0.1 to 0.7. Third, the model assessed the predictive relevance (Q^2). It was found that Q^2 is 0.297 (29.7%) as shown in Table 6. This implies that the model is possessing acceptable predictive relevance of 0.297above the threshold of zero (0) (Hair et al., 2017).

Lastly, the model assessed the effect size (f^2) for examining the strength and link between two variables. The results of the effect size of direct relationship were as follow: TA had a medium (0.033) effect size to DRAIS, ET had a medium (0.06) effect size to DRAIS and CI had high (0.469) effect size to DRAIS as shown in Table 7. Also, the results of IFRSs alignment as the moderator was as follows: TA and DRAIS moderated by IFRSs alignment had high (0.356) effect size, ET and DRAIS moderated by IFRSs alignment had high (0.435) effect size and CI and DRAIS moderated by IFRSs alignment had high (0.410) effect size, as shown in Table 8. Therefore, the strength and link between the variables were statistically substantial for further analysis because they were above the threshold of 0.02 (Hair et al., 2017).

Table 6: Evaluation results of structural model

Variables	R^2	Adjusted R^2	Q^2
Technological Advancement	0.384	0.379	.297
Economic Transformation			
Currency Innovations			
Central Bank Involvement			
IFRSs Alignment			
DRAIS			

Source: Researcher (2023)

Hypotheses Testing

The hypotheses testing both for direct relationship (TA, ET & CI to DRAIS) and indirect relationship (IFRs moderation) was calculated. The estimates (β) indicate the type of relationship existing between variables. For direct relationship, the relation could be either positive (+β) or negative (-β). Also, the moderation of the IFRSs alignment between determinants (TA, ET & CI) on DRAIS could be positive (strengthening), zero (no moderation) and negative (weakening). Therefore, significance occurs when 0≥P-Value≤0.05; insignificance occurs when 0.05<P-Value≤100.

Direct Relationship Hypotheses Testing (Model 1)

On the basis of the information displayed in Figure 2 and Table 7, hypothesis 1 (H1) proposed a positive relationship between TA and DRAIS. The outcome shows that with a beta (β) value of 0.274, t=2.154, and P-value of 0.032 (p<0.05), there is a positive and significant effect, thus hypothesis 1 (H1) is supported. The findings indicate that DRAIS is considerably influenced by TA. This means TA tends to create gaps on the existing accounting practices that require improvement and copying up with technological pace.

Hypothesis 2 (H2) predicted that there is a positive relationship between ET and DRAIS. The outcome shows that with a beta (β) value of -0.048, t=0.596 and P-value of 0.729 (p>0.05), there is a negative and insignificant effect, thus hypothesis 2 (H2) is not supported. The findings indicate that DRAIS is considerably not influenced by ET. This implies that ET does not influence DRAIS improvement. Therefore, ET in LDCs does not require accounting improvement due to the opted banning strategies of digital-resources.

Hypothesis 3 (H3) proposed a positive relationship between CI and DRAIS. The outcome shows that with a beta (β) value of 0.737, t=14.478 and P-value of 0.000(p<0.05), there is a positive and significant effect, thus hypothesis 3 (H3) is supported. The findings indicate that DRAIS is considerably influenced by CI. This means that CI leads to the emergence of digital-resources and payment systems that created gaps in the existing accounting guidance that is required to be improved.

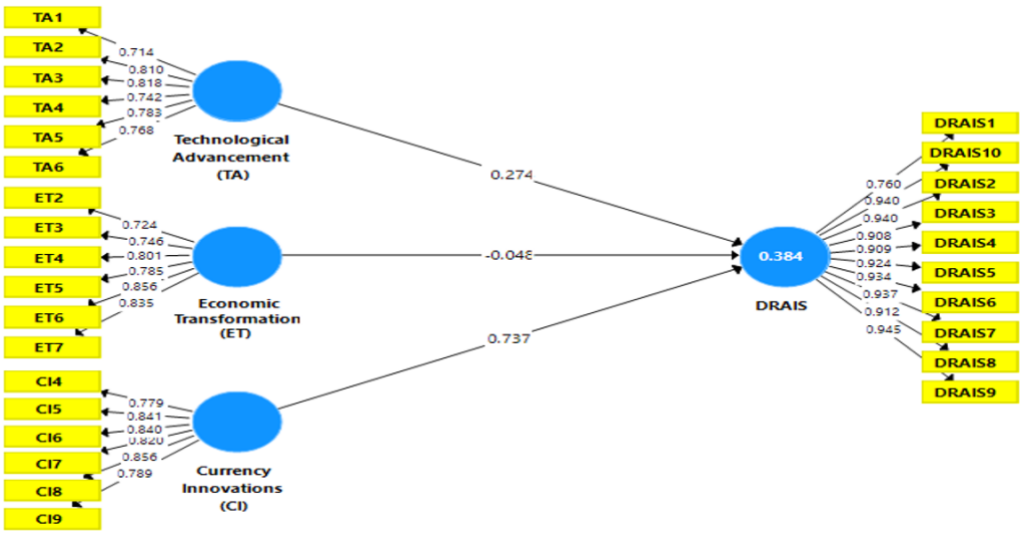


Figure 2: Hypotheses testing between modernization influences and effective DRAIS

Table 7: Hypotheses testing between modernization influences and effective DRAIS

Hypothesis	Relationship	Estimate β	Mean	SD	T	f^2	PV	Decision
H_1	Technological Advancement —> DRAIS	0.274	0.038	0.129	2.154	0.033	0.032	Supported
H_2	Economic Transformation —> DRAIS	-0.048	-0.041	0.088	0.596	0.063	0.729	Not supported
H_3	Currency Innovations —> DRAIS	0.737	0.819	0.056	14.478	0.469	0.000	Supported

Source: Researchers (2023)

Moderation Hypotheses Testing (Model 2)

The moderating role occurred after imposing a hypothetical variable (moderator) between independent and dependent variables that vary in the course of association with those variables. This study analysed the moderation role of IFRSs alignment on the relationship between determinants (TA, ET & CI) and DRAIS. Figure 3 and Table 8 reveal the results as follow.

Hypothesis 4a (H4a)

Hypothesis 4a (H4a) proposed that the IFRSs alignment has a positive moderating role on the relationship between TA and DRAIS. The results show that the beta (β) value of 0.047, t=0.426 and P-value of 0.670 (P>0.05) indicate positive and insignificant relationship, thus hypothesis 4a (H4a) is not supported. The interpretation is that there is a positive effect (strengthening) but it is insignificant (in a negligible magnitude). Therefore, IFRSs alignment did not moderate the relationship between TA and DRAIS.This implies that the introduction of IFRSs alignment variable does not increase the effectiveness of DRAIS by widely accommodating TA influences specifically digital-technology.

Hypothesis 4b (H4b)

Hypothesis 4b (H4b) predicted that IFRSs alignment has a positive moderating role on the relationship between ET and DRAIS. The results show that the beta (β) value of 0.033, t=0.256 and P-value of 0.798 (P>0.05) indicate positive and insignificant relationship, thus hypothesis 4b (H4b) is not supported. The interpretation is that there is a positive effect (strengthening) but it is insignificant (in a negligible magnitude). Therefore, IFRSs alignment did not moderate the relationship between ET and DRAIS.This implies that IFRSs do not accommodate ET specifically digital-economy effectively.

Hypothesis 4c (H4c)

Hypothesis 4c (H4c) predicted that the IFRSs alignment has a positive moderating role on the relationship between CI and DRAIS.The results show that the beta (β) value of 0.178, t=1.679 and P-value of 0.004 (P<0.05) indicate positive and significant relationship, thus hypothesis 4c (H4c) is supported. The interpretation is that the IFRSs alignment strengthens positively the effect of CI on DRAIS. Therefore, IFRSs alignment moderates the relationship between CI and DRAIS. This implies that, although IFRSs were fundamentally designed to cover physical assets, they have shown some capability of accommodating digital-resources.

Table 8: IFRSs alignment on modernization influences and effective DRAIS

Variables	Estimates (β)	Sample Mean	Standard Error	T Statistics	f^2	P-Value	Decision
TA_IFRSs alignment -> DRAIS	0.047	0.037	0.110	0.426	0.356	0.670	Not Supported
ET_IFRSs alignment -> DRAIS	0.033	0.067	0.130	0.256	0.435	0.798	Not Supported
CI_IFRSs alignment -> DRAIS	0.178	-0.238	0.106	1.679	0.410	0.004	Supported

Source: Researcher (2023)

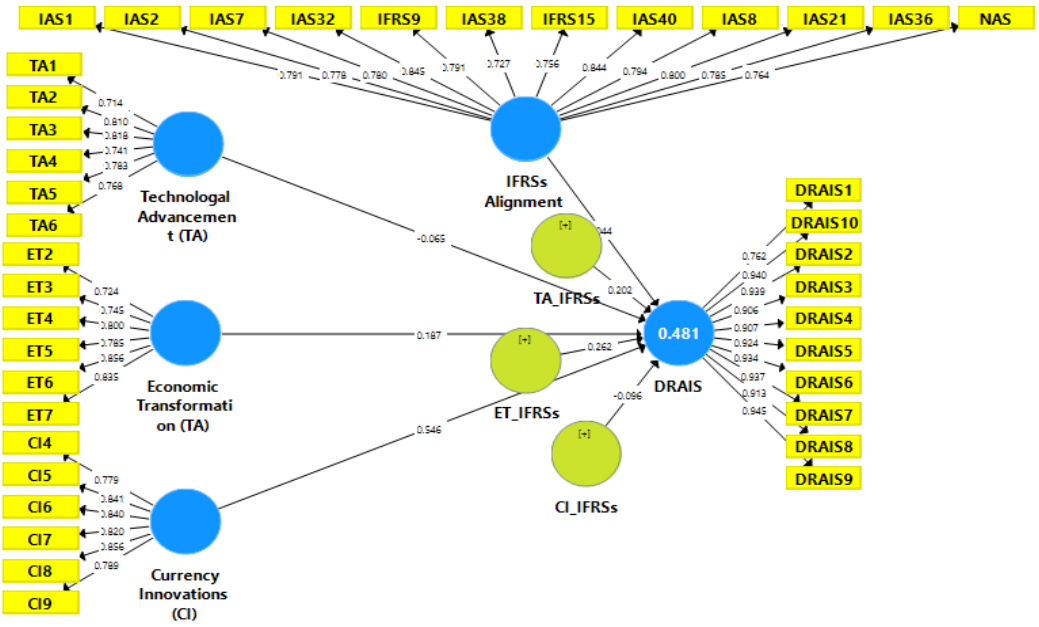


Figure 3. IFRSs Alignment on modernization influences and effective DRAIS

Discussion of Results

The study aimed to assess the relationship between modernization influences and DRAIS. The study tested six hypotheses, three were supported and the other three were rejected. The study relates the findings to theories and empirical studies in providing reasons for the results.

Technological Advancement and DRAIS

The study found a positive and statistically significant relationship between technological advancement and the effectiveness of digital-resource accounting information systems, suggesting that improvements in technology are associated with better-functioning DRAIS. One potential explanation is that modern technologies especially those involving digital tools, cloud computing, and blockchain normally enhance the efficiency, accuracy, and traceability of accounting processes. These innovations facilitate the automation of complex data flows and support real-time accounting and financial reporting, thereby improving system effectiveness. The findings are consistent with prior studies (e.g., Pashkevych et al., 2020; Nagaraj et al., 2018), which emphasize that technological tools, including distributed ledgers, improve system integrity and reduce human error.

According to the Unified Theory of Acceptance and Use of Technology (UTAUT), user acceptance of technology depends on performance expectancy, effort expectancy, social influence, and facilitating conditions (Venkatesh et al., 2003). In Tanzania, although some of these facilitating conditions (e.g., digital infrastructure) remain underdeveloped, the increasing awareness and application of digital tools in accounting may explain the observed positive association. However, adoption remains partial and uneven, particularly in less digitized sectors, which could explain the moderate effect size ($f^2 = 0.032$). While some literature has speculated on the shift from double-entry to triple-entry systems in the context of blockchain (Moosa, 2019), this study did not directly examine or test this theoretical shift; thus, such implications should be approached cautiously. The results affirm that as firms integrate advanced technologies into their accounting functions, the potential for more robust, timely, and resource-efficient DRAIS increases especially in environments that actively support technological innovation and capacity-building.

Economic Transformations and DRAIS

Economic transformation (ET) was found not to have an influence on DRAIS. One potential reason could be that these economic changes are occurring faster than the capacity of public sector accounting systems to respond, adapt, or align effectively. It is also possible that the digital economy, although growing, still remains peripheral in government operations, limiting its effect on accounting systems. These findings align with Rogoff (2019), who observed that structural economic shifts may not lead to immediate accounting innovations in economies where institutional readiness or resource commitment is low.

Moreover, this result is consistent with UTAUT's facilitating conditions construct, which emphasizes that new technologies or services only lead to adoption and effectiveness when enabling infrastructure, training, and institutional support are present. In Tanzania, these facilitating conditions may be lacking, particularly in relation to integrating digital-economic changes into public sector accounting practices. This may explain why the expected influence of economic transformation on DRAIS was not evident. The discrepancy may reflect contextual differences: while digital businesses in countries like Malaysia are integrated into national development strategies, in Tanzania, their adoption in the public sector may still be cautious, fragmented, or under restrictive regulatory frameworks, reducing their impact on accounting innovations.

Currency Innovations and DRAIS

It was found that currency innovations (CI) positively influence the effectiveness of DRAIS suggesting that the emergence and evolution of digital-resources such as cryptocurrencies and proposals for central bank digital currencies (CBDCs) have created new accounting challenges that necessitate the development of effective digital-resource accounting information systems. The finding aligns with Moosa (2019) and Mora et al. (2021), who argued that innovative forms of money require accounting systems to evolve, particularly in addressing recognition, measurement, and disclosure complexities. The results are also in line with Nagaraj et al. (2018), who emphasized the need for improved accounting frameworks as digital financial instruments become more prevalent. A possible explanation is that the unique features of digital-resources such as decentralization, programmability, and cross-border usability, have strained traditional accounting approaches, thereby reinforcing the need for DRAIS enhancements.

The findings are consistent with UTAUT, particularly under the construct of "performance expectancy," which suggests that users perceive new systems as useful if they can effectively address emerging needs, in this case, handling digital-resources. Despite relatively low adoption levels of digital-resources in Tanzania, their anticipated impact has likely driven efforts to improve accounting preparedness, explaining the positive relationship. In connection with DEBT (Double Entry Bookkeeping Theory), the findings reflect the pressure digital-resources exert on traditional double-entry principles. Although the study did not directly test whether digital-resouces have "disobeyed" double-entry logic, it supports the notion that new currency forms are prompting reconsideration of traditional frameworks consistent with Stancheva-Todorova (2019). Hence, the findings suggest that currency innovations are a key driver in the ongoing push for more robust and adaptable accounting systems.

The Moderating Role of IFRSs Alignment on TA and DRAIS

The hypothesis that IFRSs alignment positively moderates the relationship between technological advancement (TA) and the effectiveness of Digital Resources Accounting Information Systems (DRAIS) was not supported. This suggests that IFRSs, while offering a standardized framework, currently lack the capacity to effectively support the integration of rapidly evolving digital technologies into accounting practices. This finding is consistent with Abad-Segura et al. (2021), who noted that technological shifts often outpace the adaptability of traditional accounting frameworks. From the perspective of the Double Entry Bookkeeping Theory (DEBT), this result highlights a critical tension: TA particularly in forms such as blockchain, AI, and big data, challenges the fundamental assumptions of the double-entry system. For instance, blockchain introduces the concept of triple-entry accounting, which fundamentally redefines how transactions are recorded, verified, and stored. IFRSs, being deeply rooted in DEBT, are yet to reflect these radical shifts in their standards. Therefore, the lack of moderation in this relationship suggests that IFRSs, in their current form, are not adequately equipped to handle the structural reconfigurations necessitated by advanced technologies, especially in low-income countries where digital frameworks are still emerging.

The Moderating Role of IFRSs Alignment on ET and DRAIS

The study also found that the IFRSs alignment does not significantly moderate the relationship between economic transformation (ET) and the effectiveness of DRAIS. This finding aligns with Andraschko and Britzelmaier (2020), who observed that IFRSs have limited effectiveness in responding to the accounting challenges presented by evolving digital-economies. Economic transformation introduces new forms of value creation, including digital platforms, new digital-resources, and decentralized finance systems, which are often intangible and lack physical substance or centralized control. These characteristics pose serious challenges to

IFRS-based reporting systems, which rely heavily on the principles of DEBT particularly asset recognition, revenue realization, and transaction verification. The DEBT framework is inherently designed to record dual entries grounded in observable, verifiable events. However, many transactions in the digital-economy are non-traditional, decentralized, and sometimes anonymous, making it difficult to apply double-entry conventions consistently. IFRSs, although conceptually robust, have not yet provided adequate tools or guidance to account for these complexities, especially in environments like Tanzania where the digital-economy is still infant. Thus, the absence of a moderating effect may reflect the conceptual and operational limitations of applying DEBT-oriented standards to new economic realities.

The Moderating Role of IFRSs Alignment on CI and DRAIS

Unlike TA and ET, the relationship between currency innovations (CI) and DRAIS was significantly and positively moderated by IFRSs alignment, indicating that IFRSs strengthen the ability of DRAIS to respond to accounting challenges arising from digital currency developments. This finding supports the hypothesis and aligns with Kamordzhanova and Selezneva (2019), who found that traditional accounting frameworks especially those grounded in IFRSs, can effectively facilitate the adoption of digital-accounting practices when applied to clearly defined virtual-resources such as Bitcoin and Ethereum. From a DEBT standpoint, this result is particularly meaningful. Although digital-resources disrupt the conventional double-entry framework by introducing decentralized, real-time, and often automated transaction records, IFRSs offer a level of structure and consistency necessary for recognizing, measuring, and disclosing such assets. IFRSs still provide a crucial bridge by offering guidelines for asset valuation, fair presentation, and accountability thus supporting the evolution of DRAIS. The significance of this moderation implies that among the modernization factors studied, CI presents a more defined and measurable area where IFRSs can adapt and support DEBT-based principles in a digital-environment. This is particularly relevant for countries like Tanzania, which are actively exploring frameworks for central bank digital currencies (CBDCs) and may benefit from IFRS-aligned DRAIS to prepare for future integration.

Conclusion and Implication

This study aimed to examine the influence of modernization factors, specifically Technological Advancement (TA), Economic Transformation (ET), and Currency Innovations (CI), on the effectiveness of Digital-Resource Accounting Information Systems (DRAIS). It also assessed whether alignment with International Financial Reporting Standards (IFRSs) plays a moderating role in these relationships. The findings confirmed that both TA and CI positively influence the effectiveness of DRAIS, indicating that the integration of digital-technologies and innovations in currency are essential considerations in modern accounting system preparation process. However, the influence of ET on DRAIS was found to be statistically insignificant. This suggests that, in the Tanzanian context, the digital economy has not yet introduced substantial accounting challenges that necessitate significant adjustments to existing accounting frameworks. Additionally, IFRSs alignment was found to significantly moderate the relationship between CI and DRAIS, but not the relationships involving TA and ET, likely due to the limited scope of IFRSs in directly addressing technological advancement or economic transformation issues.

Theoretically, this study contributes to the ongoing discussion regarding the relevance and limitations of the Double Entry Bookkeeping Theory (DEBT) in the context of digital accounting. The results show that while DEBT continues to provide a foundational structure for financial reporting, it falls short in accommodating the complexities introduced by digital-resources such as cryptocurrencies and token-based assets. These limitations are particularly evident in areas such as valuation, classification, and disclosure, where traditional accounting lacks flexibility. Furthermore, the study highlights the shortcomings of the Unified Theory of Acceptance and Use of Technology (UTAUT) in explaining adoption behavior within less developed contexts. In such environments, negative perceptions and regulatory uncertainty appear to hinder the institutionalization of digital-innovations, despite the presence of technological infrastructure. This calls for a reconsideration or expansion of existing theories to account for contextual factors like policy direction, market maturity, and institutional readiness.

From a methodological perspective, the study makes a contribution by applying an integrated framework combining theoretical insights from DEBT and UTAUT to guide the construction of variables and hypotheses. The use of Partial Least Squares Structural Equation Modeling (PLS-SEM) through Smart-PLS software enabled the analysis of complex relationships, especially the moderating effects of IFRSs alignment. This approach offers value for researchers working in fields where constructs are still developing and data is limited. Empirically, the study moves beyond previous literature that primarily focused on accounting for digital-currency, by investigating the broader category of digital-resources. The study evaluated the operational, technological, and monetary dimensions influencing DRAIS, thereby expanding the understanding of how modernization pressures affect accounting systems in emerging economies.

In terms of policy and practice, the study offers timely insights for regulatory bodies such as the Bank of Tanzania. Although it did not attempt to redefine the concept of money, the study provides evidence that could support a more inclusive and pragmatic approach to digital-resource regulation, moving away from outright prohibition toward structured engagement. The findings suggest that accounting frameworks should be reviewed to better capture digital-resource activities for financial reporting, taxation, and financial regulation purposes. Practically, the study proposes a model grounded in empirically supported variables that can assist accounting practitioners and system developers in designing more responsive and future-oriented accounting systems. The framework developed can serve as a reference point in future revisions of accounting standards, as well as in the design of digital-accounting and auditing tools that are better aligned with the realities of digitized environments.

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