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FOREWORD

The Institute of Accountancy Arusha (IAA) is a parastatal Educational Institution established by the Institute of Accountancy Arusha Act of 1990. As part of its mission, the IAA aspires to provide high-quality competency-based training and offer research and consultancy services through applied technology. The Institute's vision is implemented by conducting research, offering consultancies to business organizations, government, and non-governmental organizations, and arranging for the publication and general dissemination of study materials in connection with the work activities of the Institute. The 4th Faculties' conferences aimed to connect postgraduate students, academics, and professionals in the fields of business and technology studies. The conference was held from 27th to 1st December, 2023 in Arusha, Dar es Salaam and online and more than 1000 participants attended. The conference offered a greater knowledge of the possibilities and difficulties businesses are currently facing, as well as strategies for influencing the future. Additionally, graduate students presented their research papers at the conferences. The overall conference theme for 2023 was "Shaping the Future: Trends and Insights for Tomorrow". Specifically, the sub-theme for the Faculty of Informatics was "Digital Transformation and Advancing Technology". Most papers were for the following areas Computer science, computer networking, mobile application, cyber security, information systems, library and information sciences among others. We thank all participants, discussants and reviewers for their valuable contributions and looking forward to the fifth conference that is expected to be held in 2024.

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The role of cloud computing resilience on organizational excellence: a case of institute of public administration - Zanzibar

Ali Makame and Thadei Kiwango

This study sought to examine the role of cloud computing resilience on organizational excellence with special focus to Institute of Public Administration - Zanzibar. Service-Dominant Logic Theory was adopted in this study. This study employed a descriptive research design with a quantitative approach, targeting a population of workers from the Institute of Public Administration - Zanzibar. A sample size of 110 respondents was randomly selected using a simple random sampling technique, and data was primarily collected through a questionnaire. Additionally, secondary data was collected through a comprehensive documentary review. Data analysis encompassed both descriptive and inferential statistical methods aided by SPSS version 26. Findings unveiled that cloud computing resilience also positively influences organizational excellence, with a strong focus on recovery from failures and risk management. The study recommends organization to prioritize and invest significantly in enhancing cloud computing security measures. This includes implementing and continuously updating robust security protocols, conducting regular security assessments, and ensuring data protection and privacy. The study recommends future research to investigate how cloud computing innovation impacts specific organizational functions, such as marketing, human resources, or customer service.

Keywords: Cloud Computing, Organizational Excellence, Resilience, Public Administration, Adoption.

A case of the Arusha institute of technology (AIT)

Aloyce Thomas Ngowa

This study investigates the transformative impact of social media on communication behaviors within the Arusha Institute of Technology (AIT) community. Through interviews and data analysis, the study explores the types of communication methods and platforms used by students, the role of social media in faculty-student communication, and the effects of social media on the dynamics within the AIT community. The findings reveal that social media platforms, particularly WhatsApp and Facebook, have become central hubs for various interactions,

including academic discussions, group projects, event coordination, and general communication. The introduction of multimedia platforms such as Instagram and TikTok has diversified conversations, allowing students to share academic achievements, extracurricular activities, and personal interests through images and videos. The study highlights the positive impact of social media on relationships, emphasizing the role of online platforms in building friendships, strengthening social bonds, and serving as channels for conflict resolution. However, conflicts and disagreements on social media platforms can lead to tension during face-to-face interactions, underscoring the importance of respectful online communication. The study concludes that social media has significantly transformed communication behaviors within the AIT community, resulting in a more interconnected and collaborative environment. To foster positive and respectful communication, the study recommends implementing digital etiquette and awareness programs, establishing clear guidelines for social media usage, organizing conflict resolution workshops, encouraging faculty involvement, promoting positive online culture, regularly reviewing and adapting policies, and involving parents and guardians in discussions about responsible social media usage. This research contributes valuable insights for educational institutions seeking to enhance communication dynamics and promote positive interactions within their communities in the digital age.

Keywords: Teacher Turnover, Leadership Styles, Autocratic Leadership, Democratic Leadership, Laissez-Faire Leadership

The effect of ICT systems application on service delivery in local government authorities in Tanzania

Apolinary Nicholas Kiwango

The increasing role of Information and Communication Technology (ICT) in modern society has transformed the way various sectors operate, and local government authorities are no exception, this research focuses on the impact of ICT systems on service delivery within Arusha City Council. The study employs a mixed-methods approach, surveying workers across divisions and units. Findings indicate a gender-diverse respondent pool with high awareness (96%) of implemented ICT systems. Tausi and LGRCIS are prevalent, with a majority (66%) perceiving good ICT infrastructure. Daily system usage is 34%, emphasizing web browsers and computers.

Efficiency improvements are reported, but challenges include a lack of training (97%) and issues like internet problems and power outages. While 71% note enhanced service quality, diverse opinions emerge on ICT's impact on government-citizen interaction. Recommendations include comprehensive staff training and user-friendly system enhancements. The study sheds light on successes and challenges, advocating for ongoing investments in digital infrastructure and addressing training gaps to ensure a more inclusive and efficient service delivery model for Arusha City Council. Further research is recommended to assess training program effectiveness and understand factors influencing divergent perceptions of ICT system usage and its impact on government-citizen interaction.

Assessment on the role of artificial intelligence in accelerating justice delivery in the judiciary of Zanzibar

Hafidh M. Ali

The aim of this research was to assess the role of AI in accelerating justice delivery in Zanzibar Judiciary specifically in the course of case proceeding, the study was started by evaluating the current use of ICT in study area, determine the adequacy of existing ICT infrastructure and explore the awareness of judicial staff on the advantage of AI in relation to court operations. Furthermore, the study explores the contribution of AI on improving case proceeding delay by considering specific recommendation. The researcher utilized descriptive research methodology which employed both qualitative and quantitative methods to investigate the independents variables. A samples of 65 judicial staffs were involved in this study, data collection methods included interview, questionnaire and document review. Subsequently, SPSS and Thematic analysis were used to analyze the recorded data. The findings noted various judiciary staffs using ICT in different activities such as typing proceedings, electronic office application, CMS, e-payment and other staffs were used computer for their specific functions. Moreover, the results of the findings explored the adequacy of existing ICT infrastructure at the Judiciary of Zanzibar is good in terms on Internet service provider, network server. However, the findings further revealed that, the few number of ICT staffs performed daily computer maintenance and troubleshooting. Moreover, the findings indicated that high percentage of judiciary staffs understand ideally about AI and agreed that speech to text techniques can minimize case

proceedings among those who have good awareness of AI they also mentioned other advantages of AI in relation to court operations. And finally the study recommends that the judiciary has to provide special training on how to adopt the AI, recruit ICT staffs. The Universities in Zanzibar should establish the AI courses to get the qualified staffs.

Keywords: ICT, Judicial system in Zanzibar, case proceeding, Artificial intelligence, Speech to text technique

The effectiveness of e-payment system (GePG) accessibility on revenue collection water supply and sanitation authority: A case of Songea water supply and in Songea sanitation authority

Lucy Msigwa

The study aimed to explain the effectiveness of e-payment system (GePG) accessibility on revenue collection in Songea Water Supply and Sanitation Authority. This research adopted a descriptive research design. A total sample of 90 government officials, and water users. Both quantitative and qualitative techniques were used. Both interviews, questionnaires, and secondary data were used in this study. The study concluded that the majority of the respondents strongly agree that timely transactions have impacted revenue collection during the usage of the system (GePG). Results show that since the introduction of the system in 2018, errors have been reduced compared to the time after the establishment of GePG. there is a reliable and sufficient internet connection. This was evidenced when the majority of the respondents who participated in this study strongly agreed that there is a reliable and sufficient internet connection to some extent. It is recommended that Issues of the network should be addressed as soon as they appear during the traction process. The Songea-WSSA should find an alternative way of ensuring the problem of the network is minimized, E-Payment mechanism should be adopted throughout the entire organization to allow an effective payment process that will generate more revenues for the Songea-WSSA. The Songea-WSSA should sometimes conduct training among its water users on how to use the system. This will built trust between the two parties.

Key Words: accessibility, e-payment system (GePG) and revenue collection

Assessment of barriers hindering the adoption of mobile broadband for narrowing usage gap in rural communities in Tanzania: a study of southern highlands regions

Richard Sotery and Pamela Chogo

The study assessed barriers hindering the adoption of mobile broadband for narrowing usage gap in rural communities in Tanzania. The study employed quantitative cross sectional design with its conduct being based on causal relationship approach. Three independent variables were formulated under study tested on mobile broadband adoption as the dependent variable. The independent variables were users' awareness, network coverage and resources. Data were collected from users of the technology from the sample of 182 respondents through structured questionnaire as the data collection instrument. The results collected were computed in SPSS software to produce statistics to present the results. Multiple regression was used to describe the relationship between study variables. The findings are clear that all three independent variables which are users' awareness, network coverage and resources are significant statistically on mobile broadband adoption as the dependent variable with $p < 0.05$. The implication of the results is that mobile broadband adoption in rural communities in Tanzania is affected by users' awareness, network coverage and resources.

Keywords: Mobile broadband adoption, regression, usage gap, rural communities, barriers

The effectiveness of telemedicine in improving healthcare outcomes: A case of mafia district in Tanzania

Paul John Kasanga and Adam Semlambo

Telemedicine has emerged as a promising solution to improve healthcare accessibility and delivery, enabling the remote provision of healthcare services through digital communication technology. However, despite its increasing adoption, a significant knowledge gap exists regarding its true effectiveness in enhancing healthcare outcomes. This research aimed to assess and analyse the effectiveness of telemedicine in enhancing healthcare outcomes in the Mafia District Council. This cross-sectional study design used a quantitative approach and was conducted in Mafia District Hospital, Tanzania. The sampling frame involved patients and healthcare providers in the provision of telemedicine services. Data was collected through

questionnaires with patients and healthcare providers in which patient questionnaires collected information on patient satisfaction with telemedicine services and perceived attitudes on healthcare outcomes. The findings from patients' perspectives highlight the importance of technology access, training, and telemedicine support. These results align with research emphasizing the significance of access to technology and effective training structures for successful telemedicine implementation. Furthermore, the study revealed positive patient perceptions of integrating telemedicine technology into healthcare facilities, emphasizing the importance of seamless integration for telemedicine success. The presence of technical issues while using telemedicine was acknowledged, reflecting the common challenges associated with technology use in telemedicine, which may influence the user experience. This study investigated the effectiveness of telemedicine in improving healthcare outcomes from the perspectives of both patients and healthcare workers. The strong prevalence of prior telemedicine usage among the respondents indicates a potential familiarity with this mode of healthcare delivery, aligning with broader research.

Keywords: Telemedicine, Healthcare, Healthcare outcomes, quality of healthcare.

Assessment of the security considerations for a digital currency: a case of Dodoma city

Gothard Gothard Kahana and Eliamani Sedoyeka

The proliferation of digital currencies has introduced transformative opportunities and unprecedented security challenges to the global financial landscape. This research outlines an assessment of the security considerations surrounding digital currency adoption within the unique context of Tanzania. The study aims to provide comprehensive insights into the security landscape of digital currencies in Tanzania by examining the existing regulatory framework, security threats, confidentiality, integrity, availability (CIA) of data, and transactions associated with digital currencies. The study employed a cross-sectional research design, where by quantitative research approach was used to investigate the security considerations in digital currency in Tanzania. Moreover, the study used simple randomly technique to select 98 respondents to cover the sample size out of 129 populations. The data were collected using questionnaire and analyzed by using descriptive statistics and correlation analysis. The study findings revealed that, there is positive and significant relationship between security threats,

confidentiality, integrity, and availability of data and transactions, regulatory framework supporting digital currency transactions and the level of security considerations, suggesting that an increase in security threats corresponds to an improvement in digital currency security considerations. The study concludes that, the interconnected nature of security threats, data integrity, regulatory support, and improve the overall security considerations in the digital currency landscape of Dodoma city. Therefore, the study recommends that, to ensure the secure adoption of digital currencies in Dodoma city, it is crucial to implement robust cybersecurity measures, including advanced encryption standards and effective anti-money laundering protocols.

Keywords: Digital currency, Cryptocurrency, Cybersecurity, Security, Tanzania.

Contributions of business intelligence tools on improving external auditing process in Tanzania

Kalisa, Geoffrey Alphonse

This study was to determine the contributions of business intelligence tools on improving external auditing process in Tanzania. , Tanzania is experiencing the problem of ineffective use of business intelligence tool on external auditing process in the organization However, the specific objectives were to examine the roles of business intelligence, business intelligence awareness and challenge of implementing business intelligence on auditing process in Tanzania. Moreover, the study adopted descriptive research design, a sample of 150 respondents who was selected from Office of Controller and Auditor General of Tanzania by using randomly sampling technique. Likewise, data collection methods was used questionnaire and documentary review as well as data was analysed by using Descriptive statistics through SPSS. The findings revealed that the potential of BI tools is immense in the area of auditing process as well as Business intelligence tools already provide many features like real time integrated view of business operations, resources and financials in a sophisticated manner like visualization of data, automated monitoring, and detailed interactive analytics. For all of these reasons, business intelligence tools are highly suitable tools for continuous monitoring and auditing in any

business. Therefore auditors and clients have to consider whether they are willing to put more time and money in BI tools.

Keywords; business intelligence, auditing, BI tools, business intelligence awareness

Transformative Impacts: Exploring the effect of Information Technology in Shaping the Auditing Process in Tanzania

Ally, Maimuna Mohamed

This comprehensive study investigates the multifaceted influence of information technology (IT) on auditing processes, with a specific focus on the National Audit Office of Tanzania (NAOT). Building on an extensive literature review, the research explores various dimensions, including error detection, fraud prevention, audit risk reduction, skills enhancement for auditors, and the role of IT in building an effective internal control system. Employing a quantitative research approach and a descriptive research design, the study collected data through questionnaires from a diverse population within the NAOT. Analysis of responses reveals a prevailing positive perception among auditors regarding the beneficial role of IT in diverse aspects of the auditing process. The study concludes with recommendations, emphasizing ongoing training, addressing barriers to IT adoption, fostering an innovation-friendly culture, and creating supportive regulatory frameworks. The findings contribute valuable insights to the evolving discourse on technology and auditing, particularly within the context of a developing nation like Tanzania. The research underscores the imperative for auditors to adapt and invest in training, with continuous adaptation and technological literacy emerging as crucial elements for the evolution of auditing practices. The study involved a sample size of 200 participants from the NAOT, representing a diverse group to capture a comprehensive understanding of the research questions.

Key words; Information Technology, Auditing Process

Factors affecting the effectiveness of government e- payment gateway system in revenue collection services: a case of the ministry of finance and planning

Penina Henjewe

The study assessed the factors affecting the effectiveness of the Government E-payment Gateway (GePG) System in revenue collection services in the Ministry of Finance. This study focused on examining the influence of GePG's transaction procedures on revenue collection services, the impact of GePG's technical procedures on the same services, and the overall influence of GePG's efficiency in revenue collection. The study used a cross-sectional research design and a quantitative research approach where data was collected using questionnaires that were self-administered to 62 respondents selected purposively for the study. The collected data was analyzed using descriptive and inferential statistics via the multiple linear regression analysis. The findings revealed that, to a high extent, transaction procedures, technical procedures and the efficiency of GePG influenced revenue collection services in the Ministry. Moreover, the regression analysis indicated a positive and significant relationship between transaction procedures, technical procedures, and the efficiency of the GePG and revenue collection services ($P\text{-value} < 0.05$). The study concluded that transaction procedures, technical procedures, and the efficiency of the GePG were important factors that influenced revenue collection services in the Ministry of Finance. The study recommends that the Ministry of Finance should simplify and enhance user-friendly payment procedures with feedback mechanisms, ensure system security through continuous monitoring and cyber security measures, integrate GePG with other government systems, and offer incentives for increased efficiency in revenue collection services.

Keywords: Government E- payment Gateway System, Revenue Collection, Technical Procedures, Transactional Procedures

The Impacts of Using ICT in Crimes Detection and Prevention for Tanzania Police Force: A Case of Arusha City

Bais Pius and Thadei Kiwango

The study sought to assess the impact of ICT in crimes detection and prevention for Tanzania police force in Arusha city. It is a descriptive research design which affected the quantitative approach to collect data from 92 respondents from the population of 120 individuals. Simple random sampling and stratified sampling techniques were adopted to get the representation from Arusha city citizens including police officers. A structured questionnaire was applied to collect information from the field. Statistical Package for Social Sciences (SPSS) version 20 was used to analyze the data in terms of frequencies distribution. Following analysis concluded that; ICT tools such as social media, close circuit television (CCTV). Smart cameras and Television are effective in creating awareness and engagement of community in crime fighting (detection and prevention) if properly used by police officers in Tanzania, also ICT tools like social media and criminals database helps Tanzania police officers in obtaining criminal information for investigation or other security procedures on crime detection and prevention. In this reality, it was recommended that, police force have to intensify the uses of ICT in all levels of security services for crimes detection and prevention as initiated in national ICT policy (2016) following the police reform program.

Factors affecting the adoption of e-procurement system in procuring chain: a case of public procurement regulatory authority (PPRA)

Baraka Ramadhan

This study assessed the factors affecting the adoption of electronic procurement (e-procurement) systems in the procuring chain. Specifically, the study examined the extent technology capacity of the organization affects the adoption of e-procurement on the procuring process in Tanzania, the organizational factors that affect the adoption of e-procurement systems in the Public Procurement Regulation Authority (PPRA) procurement processes, and the extent regulatory authority, affect the adoption of e procurement on procuring chain in Tanzania. The study adopted the mixed research approach and simple random and purposive sampling of the PPRA

staff and analyzed the quantitative data using SPSS software and thematic analysis for qualitative data. The study revealed positive attitudes towards technological infrastructure system ease of use, technical expertise, system compatibility, data security, and system reliability as pivotal enablers for e-procurement adoption. Management willingness, resource allocation, clear policies and guidelines, employee training, organizational culture, and skilled procurement staff emerged as critical factors fostering the adoption. Additionally, the instrumental role of PPRA, spotlighting the significance of collaboration, guidance, policies, system support, supervision, and the effectiveness of PPRA in driving successful e-procurement adoption. In conclusion, this comprehensive analysis provides valuable insights into the complex issue related to e-procurement adoption, emphasizing the importance of addressing socio-demographic related issues, enhancing technological infrastructure, fostering organizational readiness, and strengthening the supportive role of regulatory bodies like PPRA. These findings not only enrich the scholarly address on e-procurement adoption but also offer actionable recommendations for policymakers, organizational leaders, and stakeholders aiming to foster efficient and transparent procurement processes in public authorities.

Keywords: Public Procurement Regulatory Authority, E-Procurement, Tanzania, Tanzanian National e-Procurement System

Evaluating the impact of ICT integration on the quality of teaching and learning in public secondary schools in Tanzania: a case of mafia district council

Catherine George Tarimo and Thadei Kiwango

This research aimed to evaluate the impact of ICT Integration on the quality of Teaching and Learning in public secondary schools in the Mafia District Council, Tanzania. The study was theoretically guided by the Unified Theory of Acceptance and Use of Technology (UTAUT). The study used the descriptive research design and the mixed method approach. The target population was 4574 comprising secondary school students, teachers and ward education coordinators. The sample size was 380. Systematic simple random sampling was used to obtain 368 respondents who provided quantitative data; purposive sampling was used to get 12 participants who provided qualitative data. Structured questionnaire was used to collect

quantitative data, and interview guide was used to collect qualitative data. Quantitative data was analysed by descriptive statistics. Thematic analysis was used to analyse qualitative data. The study showed, and concluded that ICT integration on the delivery of education have implications on the quality of access to information, interactive learning, personalized learning, collaborative learning, remote learning. The Study recommends that Mafia District Council, other local government authorities in Tanzania and responsible ministries for education should provide trainings to teachers and students on the use of ICT, invest in ICT infrastructure, ensure reliable internet connectivity and computer laboratories, provide schools with adequate hardware, software, and digital learning materials.

Keywords: ICT Integration, Teaching, Learning, Public Secondary Schools

The effectiveness of ICT in regulating betting operations in Tanzania: a case of Ilala municipal, Dar es Salaam

Kabora John Eliewaha Mboya

This study, conducted to gauge the impact of ICT on regulating betting operations in Tanzania, specifically in Ilala municipal, Dar es Salaam, sets out to achieve a dual objective. The first aim is to scrutinise the influence of ICT on the regulation of betting transaction operations in Tanzania. The second objective is to evaluate the impact of ICT on advertising activities within the betting industry in Tanzania. Employing Information theory and Game theory, the study adopted a descriptive research design with a mixed methods approach. The study's target population included betting clients from several operators, namely Sport Pesa, M-bet, Wasafibet, Meridian Bet, Throne Bet, Princess Bet, Premier Bet, and 888Sport, serving approximately 400 clients daily. From this population, a sample of 81 betting players in Dar es Salaam was selected using purposive random sampling and convenient sampling. Once data was collected, the analysis process commenced through entry, coding, and cleaning, followed by the use of SPSS and Microsoft Excel for generating descriptive results, including pie charts, bar graphs, and tables. The study's findings underscored the pivotal role of ICT in shaping betting operations, advertisement, and government regulation in Tanzania. Notably, ICT, particularly through the proliferation of mobile technology like smartphones, significantly contributed to the growth of

betting and advertising activities. In light of these findings, it is recommended that the government revises existing regulatory laws to safeguard better user rights and privileges in ICT-aided betting.

Keywords: Gambling, Betting, Sports Betting, ICT

Challenges affecting the contribution of ICT exports in driving the economic growth in Tanzania

David Barongo and Edson W. Lubua

This study delves into the dynamics of the Tanzanian ICT sector and its implications for exports, employing a mixed methods research design. The study used a sample of 120 participants, and gathered data was analysed through descriptive and thematic analysis. The research explores the impact of local ICT product quality on export profiles and scrutinizes the various strategies employed by the government in this context. Findings reveal divergent perspectives among respondents, highlighting challenges and opportunities. Recommendations include strategic planning for workforce development, prioritising budgetary allocations for system enhancement, and enforcing regulations for seamless integration. The study underscores the significance of fostering collaboration between public and private sectors to optimise the sector's potential for contributing to economic growth and global competitiveness.

Keywords: Tanzanian ICT Sector, Export Profiles, Local ICT Product Quality, Government Strategies, Economic Growth

Challenges facing digital systems in providing services of the ministry of investment, industry and trade – Dodoma headquarter.

Emiliana Clavery Nyarufunjo and Stanley Chibelenje

This study investigated the challenges facing digital systems in providing services of the Ministry of Investment, Industry and Trade – Dodoma Headquarters. The study technology acceptance model. This study used a descriptive research design hence a mixed research methodology was employed. The study's target population encompassed the 300 employees

selected using purposive and simple random sampling techniques. Primary data was gathered through interviews and questionnaire while secondary data was collected using document review. Qualitative data was analysed using content analysis while quantitative data was analysed using descriptive statistics aided by SPSS. The study unveiled that network failures and system complexity as significant obstacles to service provision, emphasizing the need for addressing network reliability and system complexity to improve service delivery. The study recommends the Ministry to prioritize resolving challenges like network reliability, security threats, and interdepartmental coordination issues in digital systems. Future research should include comparative analyses of different Tanzanian government Ministries or departments to identify best practices and lessons that can improve digital systems within the Ministry of Investment, Industry, and Trade.

Keywords: Challenges, Digital Systems, Public Services, Service Delivery, Ministry

Causes for increasing cyber threats in online applications at Zanzibar Civil Status Registration Agency (ZCSRA)

Ally M. Simbamba

The study assessed the causes for increasing cyber threats in online applications, the case of Zanzibar Civil Status Registration Agency (ZCSRA). A case study research design was employed to collect primary data using questionnaires and interview from 106 respondents who were selected using purposive and convenient sampling. Data from questionnaires were analyzed in descriptive statistics using mean and standard deviation, while data from the interview was analyzed using content analysis. The study found that the study findings revealed that there are the causes behind the increasing cyber threats in online applications within the public sector. Key issues contributing to this rise include inadequate training and awareness among public sector employees, insufficient funding for cybersecurity measures, the absence of regular updates and patches for online applications, the oversight of third-party security audits, inadequate collaboration and information sharing, hasty technology adoption without proper security integration, employee gaps in understanding phishing and social engineering techniques, and a lack of robust cybersecurity policies and frameworks within public sector organizations. Addressing these challenges necessitates a comprehensive approach to cybersecurity,

emphasizing education, funding, policy development, and inter-agency cooperation to fortify the security posture of public sector online applications. The study concluded that, in order to end up the cyber threats effectively, public sector entities must prioritize cybersecurity, invest in training and resources, promote collaboration, and implement rigorous security measures across their online applications. It was recommended that, it is essential to recognize the direct link between insufficient funding and vulnerabilities in public sector online applications, governments and organizations should allocate a more substantial portion of their budgets to cybersecurity initiatives.

Key words: Cyber Threats, Online Applications.

Protecting the borders from within: unveiling factors fuelling insider threats at the Tanzania immigration department

Ally Hamisi and Maria Goyayi

The paper examines the rising worry about insider threats in the context of information technology and communication networks. As dependence on digital platforms for immigration services grows, so does the risk of sensitive data breaches and malicious insider attacks. The article discusses existing literature on insider threats, focusing on factors that contribute to such threats, such as a lack of knowledge and awareness, insufficient background checks during the hiring process, employee dissatisfaction, personal financial difficulties, a lack of strict monitoring and supervision, and more. The nature of the study prompts the use quantitative approach and descriptive research design whereby questionnaires was used as the primary tool for data collection from a sample of 112 respondents. The collected data were analyzed using SPSS whereby findings revealed that Motivation Factors to Threat had a Beta value of 0.792, while Threat Detection had a Beta of 0.096, $p < .004$ pinpointing a positive and significant relationship between motivation factors to threat and security of the e-immigration system. Since there are various types of insiders' threat being detected at the immigration department, it is recommended that management should create and implement employee's management practices which aim at monitoring the trend of employees with access to the e-immigration system. This will enhance an effective and regular control of the information system accessibility and hence reduce the likelihood of employees to temper with the e-immigration system. Moreover, it

recommends regular training and sensitization of employees with regular reminder on security risks to minimize potential victims of insider threats.

Key Words; Insider, Threat, E-Immigration

Examining the causes of common security vulnerabilities on Government of Tanzania Hospital Management System (GoT-HOMIS)

Ally Kaisi and Edwin Kwesigabo

The study examined the causes of common security vulnerabilities on Government of Tanzania Hospital Management System (GoT-HOMIS), the case of the Case of Mbeya City Council Health Department. A survey research design was employed to collect primary data using questionnaires from 118 respondents who selected using convenient sampling technique. Data from questionnaires analyzed in descriptive statistics using mean and standard deviation. The study found that, insufficient technical support to users, users, failure in effectively navigating and securing the system, limited budget allocated for implementing IT systems, financial constraint hindered the system's ability to employ robust security measures and updates, making it more susceptible to potential threats. The study revealed that while continuous training sessions were available for GoT-HOMIS users, there was a lack of emphasis on security training and awareness. The presence of stringent password requirements, rules, and policies for system usage, combined with the highly sensitive nature of the information stored in GoT-HOMIS, reflected a commitment to security. Lastly, the proactive approach of the management in providing users with a platform to submit challenges and concerns about GoT-HOMIS, as well as regular updating, maintenance of system devices such as computers contributed positively to preventing security vulnerabilities. The study concluded that it is imperative that the Government of Tanzania to take immediate and concerted action to address these security vulnerabilities within GoT-HOMIS. The study recommended that stakeholders should invest in improving technical support services by ensuring timely assistance from IT experts when problems arise.

Key words: Security, Vulnerabilities, Risk, Threat, Information system, GoT-HOMIS.

The effect of network reliability on optimizing performance of electronic immigration system: a case study of Tanzania immigration services department

Amani Destury Mwenya and Juma Ally Mshana

The study examined the effect of network reliability on optimizing the performance of the electronic immigration system; a case study of Tanzania Immigration Services Department. It employed a descriptive survey and quantitative research design. The study targeted ICT staff, comprising of network administrators, programmers, ICT help desk support officers, and system administrators. A sample of 147 was randomly drawn from a population of 177 for data collection through structured questionnaires. Analysis using descriptive statistics and Pearson correlation revealed that the electronic immigration system's performance, in terms of user satisfaction and system reliability, efficient data transmission, acceptable system responsiveness and efficient use of available bandwidth subscriptions depended solely on network quality of service. Furthermore, the study highlighted that network security played a pivotal role in key areas such as data integrity, user trust, confidentiality, verification, authentication, and threat mitigation. The study also revealed the significance of network fault tolerance in minimizing disruptions, reducing downtime, enhancing user experience, ensuring consistent performance, and aligning with regulatory compliance. Notably, a significant relationship between network reliability and electronic immigration system performance was identified. The study recommends prioritizing network traffic through Quality-of-Service mechanisms to guarantee critical immigration applications and services receive necessary bandwidth and low latency connections. Strengthening network security through regular audits and diversifying network connectivity with multiple internet service providers to mitigate the risk of single points of failure, reducing the likelihood of service disruptions and enhancing overall reliability in electronic immigration systems.

Keywords: Electronic system, Network Reliability, Immigration Services Department

The contribution of management support on the implementation of ICT disaster recovery plan and business continuity plan

Amosi Stephen and. Adam Mnyavanu

This paper examined the contribution of management support on the implementation of ICT disaster recovery plan and business continuity plan. This study was conducted using a descriptive research design to measure the implementation of ICT disaster recovery plan and business continuity plan from ten (10) selected Regional Water Supply and Sanitation Authorities. The population of this study was the entire management, ICT Staff and business operation Staff from 10 selected Water Supply and Sanitation Authorities; their population is 200 and it is from this population the sample size was drawn. The sample size of the study was 134 respondents while data were collected through questionnaire and were analysed using descriptive and regression analysis. Findings indicated that there is a positive and significant effect of management support on the implementation of ICT disaster recovery plan and business continuity plan. The study concluded that management support is crucial for the implementation of ICT disaster recovery plan and business continuity plan due to its role in strategic decision-making, resource allocation, and fostering an organizational culture of preparedness. Without management support, organizations may face challenges in effectively planning for and recovering from ICT disruptions, which can have severe consequences on their operations, reputation, and financial stability.

Keywords: Management Support, Implementation, ICT Disaster Recovery, Plan, Business Continuity

Assessment on the effects of access control on reducing cybercrimes in the selected telecommunication companies in Tanzania

Andrew Nsombo and Julius Raphael

The aim of this study was to assess the contributions of data encryption in reducing cybercrime, this study specifically aimed to determine the effects of access control on the reduction of cybercrimes. This study employed a mixed research approach and a descriptive research design in which both quantitative and qualitative data was collected through questionnaires in a Likert scale form and in-depth interviews from the sample size of this study was 232 employees from the selected companies. Data collected was analysed using both qualitative and quantitative techniques. The findings obtained shows that the variables the general correlation between independent variables and the dependent variable is 0.01, which specific consideration shows that Access Control (AC) had a correlation of .117 which was significant at .004. The correlation analysis confirms that there was positive and significant relationship between access control and reduction of cybercrimes since p-value was $<.005$. This study recommends that despite the roles played by the data encryption protocols provided by telecommunication companies, there is a need to enhance both internal and external control measures such strengthening the legal and regulatory framework to impose very serious sanctions to the individuals who tries to temper with information systems of the telecommunication companies. Secondly this study recommends on the provision of more awareness to the user of information system both within and outside the telecommunication companies because data breaches happen either through internal or external sources hence it is important that training, education and other means to enhance knowledge about cybercrimes should be implemented.

Key Words: Data, Encryption, Privacy, Telecommunication Companies, Cybercrimes

Internet of things on enhancement of standard of care in urgent medical conditions: A case study of selected hospitals in Dar es Salaam

Asela E Aikarua and Adam Mnyavanu

This study aims to evaluate if the IoT can enhance the standard of care in urgent medical conditions: a case study of Dar es Salaam at Kairuki hospital and Amana hospital. The study employs a descriptive design and a sample of 79 employed to represent the entire population

of the study. In addition, the study employs primary and secondary data collection tools including a questionnaire. Furthermore, the study employs a quantitative approach, and also sample of the study was selected through purposive sampling. Also, the study data was analyzed in quantitative ways through SPSS finally data was presented in the form of tables, and figures, the finding provides compelling evidence of the Perception of IoT Enhancing Care Quality: The respondents of respondents (76.8%), this suggests a generally positive perception of the potential benefits of IoT in enhancing care quality. Belief in IoT Improving Patient Outcomes: Significant respondents of respondents (82.6%) this suggests a high level of confidence in the efficacy of IoT devices in improving patient outcomes. Confidence in Healthcare Professionals' Skills: The respondents of respondents (88.4%), this high level of agreement indicates a strong confidence in the expertise of healthcare professionals in handling IoT technologies. Belief in Cost-Effectiveness of IoT Implementation: A significant respondents of respondents (94.2%), this indicates that a substantial portion of respondents believes that the benefits of implementing IoT technology outweigh the associated costs.

Keywords, care, urgent medical conditions, Kairuki Hospital, Amana Hospital

Effectiveness of internal auditors' use of information technology in improving the internal audit process: A case of Tanzania Commercial Bank

Martina Steven Challe and Juma Mshana

The study examined the effectiveness of internal auditors' use of information technology in improving the internal audit process: a case of Tanzania Commercial Bank. The study used cross sectional survey design and quantitative research approach to gather numerical data and analyze those using statistical methods. The targeted population included chief internal auditor, head of IT department, Chief accountant and other TCB employees from internal audit department, IT department and accountant's department. A sample of 66 respondents were selected from a population of 78 using the Krejcie and Morgan (1970)'s table of determining sample size. Data were collected through structured questionnaires and analyzed through descriptive statistics such as mean and standard deviation with the aid of SPSS software, version 26.0. Findings indicated that internal audit process has been improved as result use of information technology. The study further indicated that common errors in auditing have been reduced thus accurate data can be found. Findings also shows that through

information technology, internal auditors have been spending less time in auditing process thus reducing the cost burden organizations incurred for internal auditing. Furthermore, the study found that through information technology, transparency in internal audit process has been improved thus ensuring accountability. The study recommends that Tanzania Commercial Bank should regularly train and capacitate the internal auditors on IT related issues so as to improve the internal audit process. This should go hand in hand with ensuring that adequate number of IT experts and appropriate software for auditing are in place.

Key Words: Internal Audit, Information Technology, Tanzania Commercial Bank

The use of strong passwords practiced among employees at TANESCO Dar es Salaam branches

Beatrice Irene Masumbuko and Julius Raphael

Tanzania like many other countries has been taking initiatives to mitigate cyber-attacks in Public Institutions. Organizations like TANESCO which collects and uses much customer's information are vulnerable to cyber - data attacks. It is from this background; the study evaluated the influence of use of strong passwords practices to mitigate cyber-attack among employees at TANESCO Dar es Salaam Branches. Descriptive research design was employed to collect primary data using questionnaires and interview from actual sample of 39 respondents who were selected randomly and purposively. Data from questionnaires were analyzed in descriptive statistics using mean and standard deviation, while data from the interview was analyzed using content analysis. The study revealed that the commitment of employees at TANESCO's Dar es Salaam Branches to robust password security practices. A significant majority of employees display a strong understanding of fundamental components of sound password management, including the consistent use of both uppercase and lowercase letters, adherence to a minimum password length of 12 characters, and the incorporation of numbers and symbols. Moreover, employees consciously avoid using personal information like their names and birth dates in passwords, demonstrating a heightened awareness of the risks associated with predictable password choices and thereby reducing the threat of unauthorized access and identity theft. The study's findings also highlight the importance of nurturing a cybersecurity-conscious culture within the organization, with employees proactively updating their passwords as a vital component of long-term digital asset protection. The study concluded that, the study findings emphasize the

importance of fostering a cybersecurity-conscious culture within the organization. The study recommends that in order to facilitate the creation and management of strong, unique passwords, TANESCO should endorse the use of password management tools. These tools simplify the password management process for employees, reducing the risk of password reuse and enhancing overall security.

Key words: Strong Passwords, Cyber-Attack, Employees.

Use of fingerprint biometric technology for enhanced authentication and verification in ATMS: a case of selected banks in Dar es Salaam, Tanzania

Benjamin Sylvester and Nicholas Mwalukasa

The study aimed to examine the challenges of implementing fingerprint biometric technology for authentication and verification in ATMs in Tanzania. Security practitioners undermine biometric fingerprint authentication methods due to increased data insecurity despite the goodness and effectiveness of the method over traditional ones. Our question is; Why the Financial institutions in Tanzania are so reluctant to adopt this biometric fingerprint technology if at all it surpasses the traditional one? A case study design was adopted to explore the unknown challenges for biometric fingerprint adoption in the banking industry in Tanzania. Non-probability purposive sampling technique was used to select 60 respondents in 7 financial banks based on specific qualities, of which a structured set of questions was administered to participants for quantitative and qualitative data. Field data show that there is a great reluctance towards implementing this biometric fingerprint technology in Tanzania for commercial and non-commercial banks. Most banks in Tanzania installed, and calibrated the machines however did not put much into use. Institutional frameworks contribute to 58%, while customers contribute only 29% factors for delays. Legal and regulatory frameworks and miscellaneous factors cover the remaining percentages. It was further recommended that institutions should be encouraged to adopt whatever good technology, only that it must be safe and secured as well as protective of customers' credentials.

Developing strategies to improve ict services on electricity distribution processes: case of Tanzania electric supply company limited (TANESCO) – Dar es salaam region

Caroline N. Kimario and Julius Raphael

This study sought to develop strategies that will improve ICT services on electricity distribution processes of TANESCO. This research employed a descriptive research design and utilized both mixed research approach. Also, the population was 210 staff members of the TANESCO – Dar es Salaam Region Offices selected using simple random and purposive sampling techniques. Primary data was obtained through close-ended questionnaires and interviews while secondary data was gathered by documentary review. Quantitative data were analyzed using the descriptive statistics aided by SPSS version 26 and for qualitative data analysis, content analysis procedure was undertaken. The study indicated that TANESCO should regularly update and maintain systems, embrace new technologies, provide staff training, and collaborate with tech partners to enhance ICT services for electricity distribution. Furthermore, the study suggests TANESCO develop a comprehensive strategy to enhance ICT services in electricity distribution, and proposes future research to explore advanced ICT solutions in energy management. This includes smart grids, IoT-based monitoring, and predictive analytics, aiming to uncover how these technologies synergize with distribution processes.

Keywords: ICT services, Smart grids, Technology, Electricity, Strategy

Examining challenges in implementing a digital benefit claim management system in Tanzania public sector: A Case Study of National Social Security Fund in Dar es Salaam

Clarence Godfrey Milambo and Julius Raphael

This study investigated the specific challenges faced during the digitization of benefit claims management in the National Social Security Fund (NSSF) located in Dar es Salaam, Tanzania. It sought to evaluate the impact of these challenges on the successful implementation of digitized benefit claim management within the NSSF and proposed recommendations to address these issues. A mixed-methods approach was employed, involving both quantitative and qualitative research methods. A structured questionnaire was used for quantitative data collection, while in-depth interviews were conducted to gather qualitative data. Stratified random sampling and purposive sampling techniques were applied to select participants from the NSSF staff. Data was analyzed using statistical methods and thematic analysis. The study identified various challenges faced in digitized benefit claims management, including insufficient infrastructure, limited digital literacy among

stakeholders, financial resource constraints, resistance to change, inadequate cybersecurity measures, limited system integration, inconsistent data quality, and inadequate training programs. These challenges were found to significantly impact the successful implementation of digitization in NSSF. The challenges identified, particularly resistance to change, inadequate infrastructure, and cybersecurity concerns, had hindered the successful implementation of digitization initiatives within the NSSF. To address these challenges, it was recommended that NSSF invest in technological infrastructure, provide comprehensive training programs, enhance cybersecurity measures, and promote stakeholder collaboration.

.Keywords: Challenges, Digital Benefit Claim Management System

The effect of mobile payment systems usage on revenue collection performance at TANESCO, Dar es Salaam

Timothy Raphael Mwasile and Deogratius Kibona

The study examined the effect of mobile payment systems on revenue collection at TANESCO, Dar es Salaam. A descriptive research design was employed to collect primary data using questionnaires from actual sample of 341 respondents who were selected randomly. Data from questionnaires were analyzed in mean and standard deviation. The examination of TANESCO customers' mobile payment system usage throughout the year reveals distinct patterns. In the first quarter, there was notable adoption, indicating a positive response to mobile payment systems. Despite a slight dip in usage frequency in the second quarter, the consistent trend suggests sustained high adoption. The substantial increase in the third quarter, possibly influenced by seasonal factors, underscores a heightened preference for mobile payments. The year concludes with a peak in the fourth quarter, emphasizing increased traction towards year-end, possibly linked to external influences. Throughout the year, the study underscores the consistent significance of mobile payment systems for TANESCO customers, urging the utility to maintain and optimize infrastructure for reliability and user satisfaction. As mobile payments become integral to customer habits, TANESCO should focus on enhancing the user experience and consider expanding incentives. The findings highlight the evolving landscape of mobile payment system usage, providing valuable insights for TANESCO to tailor strategies and improve overall customer experience, emphasizing the need for ongoing attention to preferences, seasonal influences, and potential challenges to sustain and maximize benefits in the long run. The study concluded that, the

study's findings strongly advocate for the continued embrace of mobile payment systems at TANESCO, underscoring their pivotal role in improving revenue collection efficiency, financial sustainability, and customer satisfaction. The study recommended that, in order to maintain the integrity of revenue collection and ensure data security, TANESCO should invest in continuous training for both its staff and customers on best practices for mobile payments.

Influence of resource factors in determining the adoption of ERP for organizational performance: a case of Tanzania Telecommunication Corporation, headquarter

Daimahope Remmy Shendwa and Juma A. Mshana

The study examined the influence of resource factors in determining the adoption of ERP for organizational performance. The study employed mixed research approach where case study design was employed, in the same way, the study employed the sample size of 75 respondents. In due regard, thematic and SPSS as data analysis techniques were employed. In that regard, the study found that factors such as resource allocation, ICT expertise, training programs, computer skills among staff, technology infrastructure support, internet quality and availability, financial resources, and worker's assistance all play distinctive roles in shaping these perceptions. In conclusion, the data presented highlights the multifaceted nature of the decision-making process for the adoption of Enterprise Resource Planning (ERP) systems within organizations. Furthermore, the study recommends that, there is a need to conduct thorough needs assessment within the organization to identify specific requirements and challenges related to ERP adoption.

Keywords: Resources Factors, Adoption of ERP and Organizational Performance.

Cyber security knowledge and awareness level at Arusha Urban water supply and sanitation authority

David Whyte Charles and Adam Mnyavanu

This paper examined cyber security knowledge and awareness level at Arusha Urban Water Supply and Sanitation Authority. The study used case study research design while simple random and purposive sampling techniques were deployed to select members of sample size who were 92 respondents. The data were gathered through questionnaire and interview while

data were analyzed using descriptive, regression and content analysis. The study found that most of the staff are not aware of the potential cyber security threats that exist in their work environment, majority of respondents disagreed that they were familiar with the procedures for reporting suspicious emails or phishing attempts as they have not received adequate training on cyber security best practices in the workplace. The study concluded that no training is offered that could ensure effectiveness of cyber security training in preventing cyber-attacks in public institutions at Arusha Urban Water Supply and Sanitation Authority. The study recommends that it is important to develop a tailored training program that addresses the specific needs and challenges faced by AUWSA. The training program should cover various aspects of cyber security, including basic security hygiene, secure use of technology, and identification of phishing attempts, password management, and incident response procedures. The training should be interactive, engaging, and accessible to all employees.

Keywords: Cybersecurity Knowledge, Awareness Level, Arusha Urban Water Supply and Sanitation Authority

Digital transformation for information security sustainability: implementation strategy from selected banks in Tanzania

Doris Peter Lyimo. And Maria Lauda Goyayi

Banks and other financial institutions are known to be at the forefront of digitalization all over the world. One of the main drivers of digital economy development is the financial sector, which takes the second position, just behind telecommunication. The key underlying process is to move from non-digital services and operations to modernized, digital systems. The goal of digital transformation is to deliver better customer experiences, drive efficiency, adopt innovation and ultimately generate business value. This study examined the implementation strategy for digital transformation in Tanzania financial institutions. The study used two banks, Maendeleo bank and Mwanga Hakika Bank Limited to gain perspective. The study used case study research design and mixed research approach. A sample of 76 from a total of 91 respondents was selected using both probability and non-probability sampling techniques. Data were collected through structured questionnaires and interviews. The analysis of data was done through descriptive statistics, regression and content analysis. Findings revealed that there were various digital transformation implementation strategies used by the financial institutions such as the use of

digital transformation for cyber-attacks prevention, cyber-attacks detection, cyber-attacks reaction to threats, training employees on digital issues, investment in digital infrastructures and digital experts. The study recommends that financial institutions should continue training digital users on the best practices of using digital systems and prioritize data risks by creating a classification policy based on data sensitivity. The study further recommends that financial institutions should allocate adequate budget for digital transformation as a global trend. The adequate budget will help the selected banks to meet the expenses associated with digital transformation as banks need to continuously adjust every day and keep up with demands and technological changes. This is associated with having the right, digital-savvy leaders in place, building capabilities for the workforce in the future as well as empowering people to work in new ways.

Keywords: Implementation Strategy, Digital Transformation, Financial Institutions

Investigation on factor affecting security awareness among public employees: a case study of president office regional administration -Zanzibar.

Mohamed Dumba Stephen and Juma A. Mshana

Despite various initiatives, ongoing security breaches and data access issues in government ministries pose significant threats to sensitive data, citizen privacy, and the integrity of digital infrastructure. Thus, this study sought to investigate factors influencing information security awareness in among public employees at Ministry of State President Office – Zanzibar. The study used a population of 327 employees and utilized simple random sampling technique to select respondents. Primary data was obtained through a designed questionnaire while secondary data was extracted through a comprehensive documentary review. In this study, data analysis was conducted employing a comprehensive approach that integrated both descriptive and inferential statistics, facilitated by the use of the SPSS, Version 25.0. Findings indicated that there is a strong positive correlation between perceived severity and employee information security awareness. Also, the study unveiled that there is a strong positive correlation between perceived vulnerability and employee information security awareness. The study showed that there is a strong positive correlation between preventive behaviour and information employee information security awareness. This study recommends that the Ministry should enhance security training, reduce vulnerability, and promote a proactive information security culture. Future researchers should consider conducting in-

depth interviews and focus groups to gain nuanced insights into employees' deep-seated attitudes and perceptions regarding information security.

Keywords: Information security awareness, preventive behavior, protection motivation theory
PMT

Strategies to enhance the cyber security knowledge in Tanzania based on the CYBOK. A case study of Dar-es-salaam at Tanzania communication regulation authority and Dar es Salaam institute of technology

Emmanuel Simon and Juma A. Mshana

The aim of the study was to assess the strategies to enhance the cyber security knowledge based on CYBOK in Tanzania: A case study of Dar es Salaam institute of technology and Tanzania communication regulatory authority. The study was adopted a case study research design and mixed approach was used in this study. The study targeted the total population of 2168 including staffs from TCRA, DIT and undergraduate students from DIT. A total sample size of 506 was selected through non-probability sampling strategy called convenience and purposive sampling technique. Data were collected from the Dar es salaam Institute of technology and TCRA through structured questionnaires and Descriptive statistics such as mean and standard deviation were used to analyze data with the aid of SPSS software, version 20.0. Findings with their responses rates revealed that the best ways to enhance cyber security knowledge at both work place and education institution where those associated with Development of regular Workshops and Training Sessions to employee (57.7%) , Development of the training program that offer a certification upon successful completion (89.2%) , Development of Cyber security Awareness Campaigns(72.9%) , Establishment of clear and concise cyber security policies and procedures (83.1%) , Train IT and technical teams on the importance of Regular Security Updates and Patch Management (79.6%) , Creation of internal cyber security knowledge hub or resource center where employees can access educational materials related to cyber security(80.5%). Furthermore at education institutions ,findings revealed that there were also a way to enhance cyber security that were associated with Development of Comprehensive Cyber security Curriculum include theoretical and practical component(78.4%), Employment of qualified instructors who have practical experience in the field and hold relevant certifications (85.7%), Set up well-equipped cyber security labs where students can practice real-world scenarios(81.6%), Invite cyber security experts from the industry to give talks and workshops to the student t(85.1%),

Keep the curriculum and training materials up-to-date to reflect the latest cyber security threats and technologies (88.9%) and Establish a Cyber security club where students can meet, share knowledge, and work on projects together (86.6%). The study concludes that the strategies proposed for enhancing cyber security knowledge provides valuable insights for policymakers, educators, and practitioners in the field, guiding efforts to strengthen cyber security knowledge and resilience in the Tanzanian context.

Key words: Cyber security, knowledge, education institution, cyber security threats, cyber security curriculum

Factors influencing efficiency of claims management information system: a case of national health insurance fund (NHIF) headquarter - Dodoma

Esther Bernard Lugaila and Julius Raphael

This study aimed to assess the factors influencing efficiency of Claims Management Information System (CMIS) at National Health Insurance Fund Headquarter - Dodoma. This study utilized a case study research design and employed a mixed research approach. For this study, the research population consisted of 203 individuals and a sample size of 135 selected using simple random sampling and purposive sampling. Primary data was collected through structured interviews and questionnaires while secondary data was gathered through a documentary review. Qualitative data was analyzed using thematic analysis while quantitative data was analyzed using descriptive statistics analysis aided by SPSS version 26. Findings revealed that real-time data integration with external systems, intuitive design, robust security, automated workflows and advanced analytics influencing efficiency of CMIS. The study recommends future studies to focus towards the dynamic realm of emerging technologies, such as artificial intelligence, machine learning, and blockchain, and their potential integration within CMIS. By delving into these cutting-edge advancements, researchers can uncover novel avenues to further elevate both business continuity and the seamless delivery of healthcare services.

Keywords: Claims Management, Blockchain, Healthcare, Information system, Efficiency

The Impact of Information and Communication Technology on Learning Process in Tanzania: A Case Study of Ikungi District Secondary Schools in Singida Region

Eva Myula and Richard Sikira

This study sought to examine the impact of information and communication technology on learning process in Tanzania: case study of Ikungi District Secondary Schools in Singida Region. Despite of the importance of ICT in secondary schools and the strategies developed by the government and other stakeholders, few study above have examined the impact of information and communication technology on learning process in Tanzania, this fact has produced inconclusive results thus confirming the existence of knowledge gap. Therefore, the purpose of this of study is to fill this vacuum by examining the impact of information and communication technology on learning process with evidence from Ikungi District Secondary Schools in Singida Region. Mixed research approach which combines both quantitative and qualitative approaches in the collection and analysis of data was applied. The findings show that; ICT Infrastructure, Student`s attitude towards ICT and challenges hindering the use of ICT have significant effect on learning process in Ikungi District Secondary Schools. The study therefore concluded that, ICT Infrastructure, Student`s attitude towards ICT and challenges hindering the use of ICT have a significant influence on learning process in Ikungi District Secondary Schools. The underlining motion here is that once there is a significant improvement in the ICT Infrastructure, student`s attitude towards ICT and the possibility of minimizing possible challenges hindering the use of ICT, there is bound to be a great improvement of learning process in Ikungi District secondary schools in Singida Region. The study recommended that, Ikungi District secondary schools should therefore; emphasize the use of hardware and mobile phone to teachers and students in secondary schools to facilitate learning process, it should also emphasize the effective use internet service in school compound.

Keywords: Learning Process, Information and Communication Technology, ICT infrastructures, Student`s Attitude, challenges

Determinants of socio-environmental factors that drive non-revenue water in ROMBOWSSA

Fidelis valentine

This study aims at assessing the determinants of socio-environmental factors that influences non- revenue water in Rombo WSSA operation area in Rombo district. A cross sectional research design used for the study, and both qualitative and quantitative data collected. Data collected through questionnaires and interviews methods. A sample size of 393 respondents will be selected randomly where a total of 343 respondents attended the study. Content and descriptive data analysis were used in the study as the tools for data analysis for qualitative and quantitative data respectively but quantitative data was analysed with the help of Statistical Package for Social Scientists (SPSS) software. Findings of the study revealed that, un-authorization water consumption, leakage, employee's competences, meter reading and motivation were the socio-environmental factor influence non-revenue water consumption at Rombo district. Furthermore, the study recommends that, Rombo WSSA should incorporate all strategical for increasing efficient capacity of water system through expanding source of water to assure consistence supply of water at Rombo district, increasing staff morale at work, training and formulating strategical procedures for good water management like bill assessment and good structure for selling price to avoid malpractice related with water supply system at Rombo district.

Keywords: Socio-environmental factors and Non-Revenue

The role of information and communication technology in financial institution in Tanzania: A case of CRDB Bank in Arusha

Eva Fredrick Lauwo and Happiness Mkumbo

The study focused with three the main specific Objectives of the study such as the kinds of losses the financial institutions are getting as a result of not fully utilizing ICTs in their CRDB Bank operations,the benefit realized by financial institution as a result of adopting the use of ICTs and factors that lead some financial institution to adopt the use of ICTs while others not. This study adopted a descriptive design because the study needed to establish ICT as a competitive advantage of multinational in Tanzania. The target population of this study was 150 multinational banks as indicated in the list under the Central Bank of Tanzania website because it is the population that the study considers to have adequate

knowledge and accurate information about ICT as a comp while sample size 60. The study concludes that majority of the financial institutions in Tanzania have invested their resources in new products and technology innovations such as mobile banking, electronic funds transfer, internet banking and automated teller machines.

Keywords: Information and Communication Technology CTs, financial institutions , technology innovations , Bank operations, mobile banking

Investigating the Impacts of Cyber Security on Student Information Management Systems (SIMS): A Case of Ruaha Catholic University

Flowin

The pervasive use of technology in education has posed a security challenge that could jeopardize student data and educational institutions' reputations, necessitating a thorough investigation. This study explores the impact of cybersecurity on Ruaha Catholic University's Student Information Management System (SIMS). The research mainly employed a quantitative approach, with data collected through questionnaires administered to a diverse sample of 374 individuals, encompassing students and staff. This research employed a descriptive design with a population of 5,714, including students and staff. A sample of 374 was chosen using a simple random sampling technique and convenience sampling. The Statistical Package for the Social Sciences (SPSS) software analyzed the quantitative data using descriptive analysis. Also, the multilinear regression was applied involving model summary, Analysis of Variance (ANOVA) and coefficient test were employed to examine the relationship between the contributing factors and the Impacts of Cyber Security on Student Information Management Systems. The study indicates that there is a strong relationship between the factors contributing to the impacts of Cybersecurity on Student Information Management System, Ruaha Catholic University with R is 0.114³. The study's results underscore the pressing need for developing effective cybersecurity mechanisms in the education sector, specifically focusing on enhancing the security of Ruaha Catholic University's SIMS. The study recommends formulating and implementing robust cybersecurity strategies to safeguard student information, fortify system resilience, and bolster the institution's overall cybersecurity posture. Universities should prioritize implementing comprehensive cybersecurity training programs by investing in regular training sessions.

Keywords: Cybersecurity, Student Information Management System, Ruaha Catholic University, Education technology, Data security

Assessing the current state of cybersecurity in mobile money services in Tanzania: A case of Rombo District

Francisco Ernest Bandeke

Mobile money services are a significant part of Tanzania's financial landscape, contributing to economic growth and inclusivity. However, their widespread availability in underprivileged regions like Rombo District raises cybersecurity concerns. These services involve the transmission of financial resources and personal data, making them vulnerable to hackers. Small-scale entrepreneurs and businesses in Rombo District may struggle to implement comprehensive cybersecurity measures due to limited resources and technological proficiency. Adherence to regulatory cybersecurity criteria is crucial to protect consumers and maintain trust in these platforms. The study sought to establish the current state of cybersecurity in mobile money services in Tanzania. The study adopted the quantitative research approach where data was collected using online questionnaires. The sample population size for the research included 204 respondents. The research findings indicate the presence of significant cybersecurity vulnerabilities and threats that mobile money users and service providers in Rombo District, Tanzania encounter. Although certain security procedures and protocols have been implemented, there exists potential for enhancement in various domains including user education, authentication, incident response, and regulatory compliance. It is imperative to prioritize the augmentation of cybersecurity measures for mobile money services in Rombo District. This is crucial in safeguarding users and fostering a sense of trust and assurance in these platforms, particularly in rural and marginalized regions. By bolstering cybersecurity education, establishing robust authentication mechanisms, expanding incident response strategies, and promoting collaborative efforts with law enforcement agencies, both end-users and service providers may collaboratively establish a more fortified mobile money ecosystem. The implementation of these safeguards is crucial not only in safeguarding the financial assets of users but also in cultivating trust and confidence in mobile money services, particularly in distant and underserved regions such as Rombo District.

Keywords: cybersecurity, data privacy, online mobile transactions, mobile money services, phishing attacks

Investigating the impacts of cyber security on student information management systems (SIMS): A Case of Ruaha Catholic University

Frowin R. Kifaru

The pervasive use of technology in education has posed a security challenge that could jeopardize student data and educational institutions' reputations, necessitating a thorough investigation. This study explores the impact of cybersecurity on Ruaha Catholic University's Student Information Management System (SIMS). The research mainly employed a quantitative approach, with data collected through questionnaires administered to a diverse sample of 374 individuals, encompassing students and staff. This research employed a descriptive design with a population of 5,714, including students and staff. A sample of 374 was chosen using a simple random sampling technique and convenience sampling. The Statistical Package for the Social Sciences (SPSS) software analyzed the quantitative data using descriptive analysis. Also, the multilinear regression was applied involving model summary, Analysis of Variance (ANOVA) and coefficient test were employed to examine the relationship between the contributing factors and the Impacts of Cyber Security on Student Information Management Systems. The study indicates that there is a strong relationship between the factors contributing to the impacts of Cybersecurity on Student Information Management System, Ruaha Catholic University with R is 0.114^a. The study's results underscore the pressing need for developing effective cybersecurity mechanisms in the education sector, specifically focusing on enhancing the security of Ruaha Catholic University's SIMS. The study recommends formulating and implementing robust cybersecurity strategies to safeguard student information, fortify system resilience, and bolster the institution's overall cybersecurity posture. Universities should prioritize implementing comprehensive cybersecurity training programs by investing in regular training sessions.

Keywords: Cybersecurity, Student Information Management System, Ruaha Catholic University, Education technology, Data security

The role of corporate social responsibility in enhancing business performance of commercial banks in Tanzania: a case study of selected commercial banks

Frankline Laanyuni Mollel and Mniko Simon

The study was motivated by the quest to gain meaningful understanding into the role of corporate social responsibility practices on the business performance of selected commercial banks and the specific objectives comprised of; to assess the effect of philanthropic responsibility on business performance, The study focused on four major banks located in Dar es Salaam, Tanzania: Tanzania Commercial Bank (TCB), CRDB Bank, National Microfinance Bank (NMB), and National Bank of Commerce (NBC). The research design employed was descriptive and the research approach used was mixed-methods, combining qualitative insights gained through interviews with key stakeholders and quantitative data analysis of financial and performance indicators. Purposive sampling was used to select a sample size of 69 individuals for the study. Data collection involved questionnaire surveys, interviews, and secondary data collection. The findings revealed a widespread belief among bank employees regarding the positive impact of CSR on various aspects of business performance, including reputation, customer support, employee motivation, financial performance, and stakeholder relations. The results highlighted a moderately strong positive correlation between philanthropic responsibility and financial performance, with a highly significant p-value, indicating that an increase in philanthropy responsibility tends to improve financial performance. The model summary revealed that philanthropy responsibility explains approximately 47.2% of the variation in financial performance, and the coefficients emphasized its positive and significant influence. The study recommends strategic integration of CSR, transparent communication, employee involvement, expanded environmental initiatives, enhanced stakeholder engagement, ethical training, impact measurement, community involvement in decision-making, philanthropic partnerships, and fostering a CSR-centric organizational culture

Keywords: Corporate Social Responsibility, Business Performance

Assessing the confidence and trust of users in the security of mobile transactions in Tanzania's: A case of CRDB Bank

Gamnini Jeremuah Mayunga and Joseph Daud

This research sought to assess users' trust and confidence in the security of the online mobile transactions offered in Tanzania. The shift towards mobile devices in financial transactions has raised concerns about security, particularly in the face of data breaches and cyberattacks. Trust and confidence in online transactions are influenced by emotional and cognitive factors, and a user-centered methodology was used to understand these factors. The study was conducted at CRDB Bank in Tanzania, focusing on online mobile transactions among its 259,000 clients using the online mobile transactions. Out of this the sample size of 277 respondents was arrived at using the Sloven's formula. The research used an exploratory approach and quantitative methodology, employing random sampling to ensure equal representation. The data was gathered through online questionnaires, which included closed-ended questions, allowing respondents to choose from a pre-established set of possibilities. The inferential data analysis technique was used to obtain results beyond the existing data, utilizing SPSS software for a concise presentation of the data. The study aimed to understand the perspective of the targeted audience. Based on the study results, we can say that CRDB bank has strong data security measures in place, as shown by the positive feedback from bank customers. Most of the people who took part said they were confident in the data security measures that the bank uses to protect user information during online and mobile transactions. When you look at how well CRDB Bank's data security methods work, you find that its customers have a wide range of opinions and worries. Trust and knowledge of safety steps are very important for making people feel comfortable with doing business online. There are, however, security holes and technical issues, along with the need to make sure users have a good experience, mean that security steps need to be carefully balanced.

Keywords: online mobile transactions, user trust, data security, confidence, financial transactions

Assessment on the influences facing implementation of Intelligent Transport System (ITS) in Bus Rapid Transit (BRT) project: a case of selected UDA rapid transit (UDART)

Geofrey S. Bachwenkizi and Kenneth L. Mlelwa

The Influences Facing Implementation of Intelligent Transport System (ITS) in Bus Rapid Transit (BRT) Project" study endeavors to examine the multifaceted challenges and factors influencing the successful integration of Intelligent Transport Systems within Bus Rapid Transit initiatives. The study employs a comprehensive approach to identify, analyze, and categorize the principal influences encountered during ITS implementation in BRT projects. These influences span various domains, including technological, regulatory, financial, managerial, and stakeholder-related aspects. The investigation seeks to shed light on how these influences impact project outcomes and effectiveness. Key objectives of this assessment include identifying the key influencers, evaluating their impact, and offering insights into potential strategies for mitigating challenges and optimizing opportunities which was guided by mainly three specific objectives, which were to analyze fund deployment on the implementation and maintaining of ITS in BRT project, to examine managerial competencies in supervising and implementation of ITS in BRT project, to determine critical success factors influencing the implementation of ITS in BRT project at UDART. The research draws on a diverse range of data sources from UDART staffs by descriptive surveys and expert interviews with the target population of 106 samples but only 100 respondent's responds, to provide a holistic understanding of the dynamics at play. The research was guided by three theories which are the technology adoption theory, the Systems theory and stakeholder theory. Through mixed method approach, data were collected using interviews and questionnaires for employees of Uda Rapid Transit (UDART) and eventually analyzed by using qualitative and quantitative data analysis techniques. Data collected from the field were analyzed and comparison by using MS Excel and the SPSS software package (Statistical Package for Social Sciences). Generally, findings from form the collected data revealed that, the influence of funds deployment are source of fund challenges which may pose obstacles to the successful execution of the ITS in BRT project. From the multiple regression analysis, a direct path between the variables fund deployment and the variable ITS in BRT project implementation revealed that a critical success factors has a positive influence in the successful ITS Implementation which has the highest average mean value of 4.085 and

standard deviation of 1.138. This variable is statistically significantly ($\beta= 0.252$, $t= 2.458$, $p<0.05$) which related to a ITS implementation in BRT project. These results mean that we rejected the null hypothesis and fail to reject alternative hypothesis. For the managerial competencies the revealed shows the means value of 3.707 and standard deviation of 0.645 which implicate the relationship between managerial competencies and the success implementation of ITS in BRT project. The findings from the field indicate that the fund deployment has mean value of 3.947 and standard deviation of 0.857. The results shows the satisfaction of the output provided from the respondents meaning that fund deployment has an influence in ITS implementation in BRT project. Also from the multiple regression analysis, a direct path between the variables a fund deployment and the variable ITS Implementation in BRT Project revealed that the fund deployment is statistically significantly ($\beta= 0.203$, $t= 1.977$, $p<0.051$) related to a ITS Implementation in BRT Project. These results mean that we rejected the null hypothesis and fail to reject alternative hypothesis. It is concluded that, technological innovation in critical successful factors influence positively the implementation of ITS in BRT project. It is also recommended that for better implementation and performance of ITS in BRT project, managers should be capable and competent to execute duties and responsibilities put forward to implement ITS in BRT project.

Keywords: Intelligent Transport System, Bus Rapid Transport (BRT), Public Transport, Transport, Financial constraints.

Assessment of taxpayer's satisfaction in using the Tanzania revenue authority electronic returns filing system

George Silwimba

A study was done in order to assess the taxpayer's satisfaction in using the Tanzania Revenue Authority e-filing system. The study used a cross-section research design and quantitative research. Questionnaire and interview guide tools of data collection were employed to obtain data from 100 individuals and corporate taxpayers in Kinondoni Tax Region by using simple random sampling procedure. The findings from the chi-square test revealed that e-filing system reliability ($p<0.05$), e-filing system flexibility in accommodating new changes ($p<0.01$), information offered by the e-filing system ($p=0.05$), e-filing system provision of accurate tax return and payment information ($p<0.01$) and improvement of taxpayers' satisfaction. Additionally, it was revealed that TRA's electronic returns filing system enhances taxpayer's satisfaction because of the significant association observed on the system quality, information quality and system support quality. The study recommended that

TRA should maintain the electronic filing system reliability, flexibility in accommodating new changes as well as maintaining satisfaction of the users/customers.

Key Words; Tax Returns, Electronic Filing System, Tax Compliance, User Satisfac

Factors influencing data security on e-commerce platforms and its impact on customer satisfaction: a case of selected e-commerce platforms in Dar es Salaam

Deodatus EB Gindu and Kenneth L. Mlelwa

E-commerce has witnessed unprecedented growth, offering a convenient and efficient platform for businesses and consumers. Data security in e-commerce is paramount, as it directly affects customer satisfaction. This research investigates the factors influencing data security on e-commerce platforms and their impact on customer satisfaction, focusing on selected e-commerce platforms in Dar es Salaam, Tanzania. The study engaged a sample of 74 respondents to gather insights on this critical issue. The research employs a qualitative approach in collecting data to comprehensively assess the security challenges faced by e-commerce platforms and their consequences on customer satisfaction. The study reveals that security factors such as privacy, integrity, availability, and authentication processes, significantly influence data security. Furthermore, the research demonstrates a strong correlation between robust data security and enhanced customer satisfaction in the e-commerce domain. Key themes emerged from the findings: data security, e-commerce, and customer satisfaction. The outcomes of this study provide valuable insights for e-commerce platforms, businesses, and policymakers to enhance data security measures and ultimately improve the satisfaction of customers in the rapidly evolving e-commerce landscape.

Keywords: Customer Satisfaction, Data Security, E-Commerce Data, E-Commerce Platforms, Privacy

ICT disaster recovery plan on improving information security in public health institutions: a case study of Tanzania national hospitals

Given Geoffrey Ngodoki and Juma A. Mshana

This study aimed to assess the role of backup and ICT disaster recovery plan on improving information security in public health institutions; a case study of Tanzania national hospitals. It was guided the following specific objectives; to determine the contributions of ICT disaster recovery preparedness on improving information security in the health sector. The study

employed the 3-2-1 backup rule and principle latest privilege as well as the continuous improvement theory to provide fir the theoretical foundation of the study. This study employed a mixed research approach and a descriptive research design in which both quantitative and qualitative data was collected using questionnaires and interview administered from 65 respondents who participated in this study. Quantitative data was analysed using SPSS and qualitative data was analysed using thematic and explanatory procedures. The research findings show that through regression analysis shows that ICT Disaster Recovery Plan, Therefore, the results of the regression analysis depict a positive and significant relationship between the determinants/predictors of ICT disaster recovery plan and improvement of information system. Therefore, it can be concluded that the roles of ICT disaster recovery plan in public health institution is very important in fortifying information security. These measures not only safeguard critical patient data but also ensure uninterrupted healthcare services, even in the face of unforeseen disasters. Thus, the integration of backup system and ICT disaster recovery plans is indispensable in fortifying information security within public health institutions. Therefore, the study recommends the following. This study recommends that public health institutions must conduct software auditing in order to assess the vulnerability of their systems to ICT disasters regularly, also recommends that there is a need to ensure the regular update of the information system so as to avoid the likelihood of be affected by cyberattacks which causes ICT disasters.

The effect of perceived usefulness and ease of use of information system towards cybersecurity of banking systems in Tanzania

Godwin Jacob Mbekelu and Mniko Simon

Purpose – The study was formulated to assess the effect of usefulness and ease of use of information system towards cybersecurity of banking systems in Tanzania.

Design/methodology/approach – The study collected data through questionnaire and adopted quantitative approach whereby Pearson Chi-Square, One-Way ANOVA and Regression Analysis models were applied.

Findings The findings revealed a significant relationship between usefulness and ease of use of information system and cybersecurity of banking system.

Research limitations/implications – The findings of this study may not truly give perceptions and attitude of all banking system users as only a single bank staff in Tanzania were contacted to participate in the study.

Practical implications – The results from this study will provide an insight to banking industry in relation to adoption and application of banking systems.

Originality/value – The interest in cybersecurity in financial institution is a growing knowledge base over the recent years, though, usefulness and ease of use of banking systems towards the fight against cyber-attack incidents has been never given attention.

Keywords; Cybersecurity, banking system, usefulness, ease of use Paper type Research paper

Determinants of the biometric technology adoption in digital banking payment systems in selected commercial banks in Tanzania

Golden Kamage

This study assessed the level of awareness of biometric technology among consumers of digital banking payment systems in Tanzania. A cross-sectional quantitative survey was conducted with 366 bank customers in Dar es Salaam selected through simple random sampling. Data was collected using a structured questionnaire with 5 Likert-scale and factual questions. Descriptive and Probit analysis was performed using frequencies, percentages, means and Marginal Effects. The findings revealed that majority of respondents (66%) were not aware of biometric technology for digital banking payments. Probit Analysis measured at 95% confident interval, indicates awareness significantly positive correlates to biometric adoption by 63%. Descriptive Analysis of awareness questions showed low mean scores below 2 on a 5-point scale regarding comprehension of how biometrics functions for payments, this highlighted poor knowledge among consumers. The study concluded that lack of awareness significantly hinders adoption of biometrics for digital banking. Banks needs effective progressive strategies like training and campaigns to promote awareness and improve adoption. This provides insights to guide policy and practice in facilitating biometric technology diffusion. Further research can extend the investigation to other determinants such as implementation budget, expert availability and biometric interoperability.

Keywords: awareness, biometric technology adoption, digital banking payments (5 Kewords)

Examining mechanism for prevention of data breaches in social security fund in Tanzania: A Case Study of National Social Security Fund, Head Office, Dar es Salaam

Halima Salum Madilo and Mniko Simon

This research endeavors to investigate the cybersecurity measures in place within social security funds in Tanzania, with a particular emphasis on their effectiveness in averting cyber-attacks and data breaches. The study seeks to provide insights into the prevailing cybersecurity landscape within this sector and offer valuable recommendations for enhancement. A quantitative approach, including surveys and data analysis, was employed to collect and analyze data from the National Social Security Fund (NSSF) and the Public Service Social Security Fund (PSSSF) in Tanzania. A purposive sampling technique was used to select participants with expertise in cybersecurity. The study integrated both descriptive and inferential statistical analyses to assess the effectiveness of current cybersecurity measures. The findings revealed that while social security funds had implemented several cybersecurity measures, there were gaps in their efficacy. Participants identified vulnerabilities in the infrastructure and indicated a need for further training. Additionally, the study highlighted a lack of engagement with external experts and deficiencies in backup and recovery systems. The study concludes that the current cybersecurity measures within social security funds in Tanzania require significant improvements to adequately protect against cyber-attacks and data breaches. To fortify cybersecurity measures in social security funds, this study recommends implementing regular training programs, strengthening access controls, conducting comprehensive risk assessments, establishing dedicated cybersecurity teams, enhancing encryption techniques, and fostering awareness.

Keywords: Mechanisms, Data Breache

Assessing the impact of software piracy in information system security: A case of Tanzania telecommunications corporation

Helena Joseph Kapela and Edwin Kwesigabo

This paper assesses the effects of software piracy in Information Security in Tanzania and the measures to be taken towards software piracy situation in the country. There has been large spread of computers and the internet around the world and has brought a lot of advantages to everyday life, but also created new opportunities for unethical and illegal acts such as software piracy. In Tanzania, literatures on impacts of software piracy in information system

security are limited (largely lacking). To fill a literature gap on impacts of software piracy specifically in information system security in Tanzania, the researcher in this study decided to research on the impacts of software piracy in information system security in Tanzania to determine key factors, effects and identification of measures towards software piracy, using TTCL as a case study. The study used descriptive statistics in a form of frequencies, mean and standard deviations involving Information Technology officials at the TTCL headquarters in Dar es Salaam Tanzania. It had sample size of 109 respondents. However, the response rate turned to be 87% in which 95 participants responded for the study. Findings revealed that, Usage of pirated software had adverse effects in information security in Tanzania government institutions that involve use of software in provision of its services. It was therefore recommended that; the Tanzanian government should formulate good policies of safeguarding information security for emanating from software piracy behaviors among its institutions.

Key words: Software piracy, Information system security, Telecommunication, Tanzania

Examining the accuracy of the electronic marking system compared to traditional manual marking processes in the context of standard seven examinations in Tanzania: A case of the national examinations council of Tanzania

Kehongo Jacob Siyange and Hamad Hiza Amdani

The study examined the accuracy of the electronic marking system compared to traditional manual marking processes in the context of standard seven examinations in Tanzania: A Case of The National Examinations Council of Tanzania. A survey research design was employed for the study. The study adopted a quantitative research approach for data collection and analysis. Quantitative research approach enabled the researcher to gather numerical data from the respondents, while providing easier way of managing and analyzing data. Primary data was collected using the questionnaires from 118 respondents who were selected conveniently. Data from the questionnaires were analyzed in mean and standard deviation. The study found that, the adoption of electronic marking systems is significant as they consistently outperform manual processes in terms of accuracy, reliability, and efficiency. Notably, the electronic marking system demystifies error free zone architecture, enhance transparency, and promote equitable grading, thus addressing longstanding challenges associated with manual grading methods. Moreover, the system's ability to streamline the grading process and facilitate error

identification underscores its potential to revolutionize the educational assessment landscape in Tanzania. These findings have significant implications for educational authorities, suggesting a compelling need to transition to electronic marking systems to ensure fair, accurate, and efficient grading practices that benefit both students and the educational system as a whole. The study concluded that, the comparison between the electronic marking system and the traditional manual marking process reveals that the latter is not only time-consuming and inefficient but also challenging to monitor and audit. The study's results shed critical light on the deficiencies of the manual process, particularly in terms of its lack of the highly sophisticated advanced features and capabilities, which are readily available in electronic marking systems. It was recommended that in order to ensure the successful implementation of electronic marking systems, it is crucial to invest in comprehensive training programs for educators and administrative personnel involved in the grading process.

Keywords: Electronic Marking System, Traditional Manual Marking Processes, Standard Seven Examinations.

Impact of terminal operating system downtime on revenue port performance: A case of Dar es Salaam port

James Innocent Mkinga

The purpose of this study was to investigate whether Terminal Operating System modules downtime affect the revenue collection performance of Dar-es-Salaam port. Terminal Operating System modules considered in this study are Billing System, Cargo System Container and Cargo System General Cargo. Quantitative research approach was adopted in this study where data collection was conducted through retrieving data from Dar-es-Salaam Terminal Operating System. The researcher retrieved data for one year period in a system that records data on daily basis, so the analysis was based on data collected for 365 days. Multiple regressions analysis method was employed to test the impact of Billing System Downtime, Cargo System-Container and Cargo System-General Cargo on port revenue collection performance. This result reveals that billing system module downtime has a significant impact on port revenue collection performance. While, Cargo System-Container Module Downtime and Cargo system-general cargo module Downtime have insignificant impact on port revenue collection performance. This paper creates awareness to port

management and other stake holders to understand the best area of a Terminal Operating System to focus on if the goal is to improve port revenue collection. The study shows that of the three system modules, it is only the billing system module downtime that influences the port revenue performance. This This means that in order to maximize the performance of port revenue collection, port management should make sure billing system availability is maintained at all times.

Keywords: Terminal Operating System, Port revenue performance, Cargo System-Container Module Downtime, Billing system module downtime and Cargo system-general cargo module Downtime, information system downtime

The effect of information communication technology (ICT) on procurement performance at GPSA headquarters

Jeremiah Charles Mashenenhe

Objectives: ICT has transformed various sectors of the economy. ICT is being adopted by institutions in Tanzania thanks to the e-government initiative. ICT has been adopted in the procurement departments of various organizations. GPSA headquarter has adopted ICT in its procurement function and this study seeks to establish the impact of ICT on the procurement performance at GPSA headquarters. Methods: to achieve the objective of the research, the study adopted the quantitative research approach. The target population of the research included the employees at GPSA headquarters with a sample size of 80 respondents. The respondents included only those who are actively involved in the implementation of ICT and procurement services. Data was collected using online questionnaires and analyzed quantitatively in the form of tables. Results: The adoption of Information and Communication Technology (ICT) is deemed a valuable pursuit due to its various good effects, such as enhanced efficiency, increased transparency, improved data management, and reduced instances of fraud. The study has established that GPSA headquarters has managed to enhance efficiency in the procurement performance due to ICT adoption. Similarly, the institution has also managed to curb fraud and errors through the ICT implemented at the institution. Based on this, it can be inferred that the institution has benefitted significantly from the implementation of ICT in its procurement performance. Conclusion: ICT has enabled the institution to enhance its procurement performance. There are however some challenges that must be addressed by the institution to ensure effective ICT adoption such as

staff training. *Keywords:* information communication technology (ICT), procurement, transparency, accountability and data management

Influence of human resources for health information systems on retention management of remote public healthcare workers in Morogoro, Tanzania

Johannes Charles and Hamad Hiza Amdani

Human Resources for Health Information System (HRHIS) was established by the Government of Tanzania as a strategy retention strategy to ensure the proper healthcare workers allocation. Despite HRHIS's importance, empirical research exploring the impact of HRHIS on healthcare worker retention remains scarce. This study fulfilled this purpose by examining the Influence of Human Resources for Health Information Systems (HRHIS) in shaping retention management strategies within remote public healthcare facilities in Tanzania. The study area was Malinyi District Hospital in Morogoro with a cross-sectional design accompanied by a mixed method technique. The population were 71 healthcare workers who were drawn from Malinyi district hospital, yielding a sample size of 61. A purposive sampling technique was employed to get relevant information from respondents including the Council Health Management Team (CHMT) which acts as the HRHIS focal person from a sample size. Survey questionnaires and interviews were employed as methods for primary data collection and the self-administered questionnaires with closed-ended, 5-level Likert scale and semi-structured interview questions formats were used as tools for primary data collection. Statistics Package for Social Science (SPSS) was employed to analyse descriptive and inferential Quantitative data and the qualitative data which were gathered through semi-structured interview questions were subjected to thematic analysis. The study findings show a high positive trend with a mean range (3.50-4.29) suggesting that respondents generally agree that HRHIS plays a crucial role in facilitating various aspects of retention also showed a significant ($p=0.023$) and Odds Ratio implying an increase in facilitating proper healthcare workers allocation to manage workload by 16.082. This revealed that HRHIS has been influential at Malinyi District Hospital and the study recommended that all public healthcare facilities in Tanzania should use HRHIS shaping retention management strategies.

Keywords: HRHIS, Healthcare, Retention Strategies, Information System

Assessment of factors influencing institutional confidentiality challenge from information system outsourcing in Tanzanian government (case of Dar es Salaam referral hospitals)

Joshua Josephat and Mlelwa

The “Assessment of factors influencing institutional confidentiality challenge from information system outsourcing In Tanzanian government (case of Dar es Salaam referral hospitals) study endeavors to examine the complex challenges and factors influencing the confidentiality challenge at government institutions that outsource information systems from non-government providers. The study employs a comprehensive approach to identify, analyze, and categorize the major influences of institutional confidentiality challenge at Tanzanian government referral hospitals in Dar es salaam. These influences comprise various influence or factors such as access controls, data classifications, encryption, guiding rules and policies, integrity and accountability. The assessment tried to find how these influences impact the confidentiality of the institutions and its related outcomes such as trust and reputation. The main goal of this assessment was to find the significant influencing factors, evaluating their impact, and recommending the measures and strategies to be implemented in order to overcome the confidentiality challenges and enhancing the government image and trust to citizens and stakeholders. This assessment was led by three specific objectives which included examination of the confidentiality controls mechanism or measures implemented at government referral hospitals in Dar es Salaam that outsource information system from non-government providers, assessment of the awareness of government outsourcing guidelines by these hospitals and the evaluation of the organizational culture. The study collected data from staffs at these the hospitals using descriptive questionnaires with the target population of 100 samples and 99 successfully responded and filled the questionnaires. The study based on three theories including Agency Theory (AT), Technology acceptance model (TAM) and the Transaction Cost Theory. Using analytic quantitative approach, data were collected using questionnaires, organized using Microsoft Excel 2019 Plus and analyzed by quantitative data analysis techniques using IBM SPSS version 25 software package (Statistical Package for Social Sciences). From the multiple regression analysis, the findings from the data analysis revealed that Institutional Confidentiality Challenges was influenced by implementation of confidentiality control mechanisms such as access controls and data classifications which was statistically significant with coefficient values ($\beta=0.820$, $t=14.274$, $p<0.05$) where $p = 0.000$.

These results mean that we reject the null hypothesis and fail to accept alternative hypothesis. However, the findings of the study showed that awareness to guidelines and policy was statistically insignificant, thus not related to Institutional Confidentiality Challenge by the coefficient values; ($\beta = -0.076$, $t = -1.327$, $p > 0.05$) where $p = 0.188$. These results mean that we accept the null hypothesis and reject alternative hypothesis. In addition, the findings also showed that organizational cultural practices such as accountability and integrity were statistically insignificant, thus not related to Institutional Confidentiality Challenge with the statistical coefficient values; ($\beta = -0.017$, $t = 0.289$, $p > 0.05$) where $p = 0.773$. These results mean that we accept the null hypothesis and reject alternative hypothesis. In conclusion, the study found that proper and strong confidentiality control measures including proper access control mechanism and data classification plays a pivotal role in ensuring that Tanzanian government institutions that outsource information systems protect or maintain the institutional data and information confidentiality.

Keywords: Institutional Confidentiality Challenge, Information System Outsourcing, Tanzanian Government Institutions.

Examining the effectiveness of mobile payment channel on electronic ticketing system: A case study of Uhuru Stadium

Kassian Ernest and Deogratias Kibona

The study examined the effectiveness of mobile payment channels on electronic ticket payment system with evidence from Uhuru Stadium in Dar es Salaam. The study targeted the total population of 576 including football fans and Uhuru Stadium staffs. A total sample size of 312 was selected through convenience and purposive sampling technique. A descriptive survey research design and mixed approach was used in this study. Descriptive statistics such as mean and standard deviation were used to analyze data with the aid of SPSS software, version 26.0. Data from questionnaires were analyzed in frequency and percentages while data from the interview was analyzed using content analysis. The study found that, there are critical challenges within the mobile payment channel on electronic ticket system at Uhuru Stadium, necessitating immediate attention. Users express dissatisfaction with the system's user-friendliness, emphasizing the need for an intuitive interface to boost user satisfaction. Security concerns underscore the requirement for robust security measures and user education to rebuild trust. The study concluded that, to ensure effectiveness in mobile

payment while using electronic ticket system for football fan and Uhuru staffs, it is important to streamline the user interface, bolster security measures, improve system reliability, optimize transaction speeds, and provide responsive customer support. It was recommended that, it is crucial to invest in interface development. Implement user-friendly design principles, streamline the payment process, and offer user guidance to create an intuitive and straightforward experience for ticket buyers.

Key Words: Examine, Effectiveness, Mobile Payment Channel, Electronic Tickets System

The effect of using information technology and communication in combating drug trafficking. a case of Zanzibar urban areas

Mpaji Juma Hassan and Mniko Simon

The study examined the effect of using information and communication technology in combating drug trafficking a case of Zanzibar urban areas. The study employed descriptive survey research design and a quantitative research approach. The targeted population in this study included the police officers in Zanzibar, the Zanzibar Drugs Control, Enforcement Authority officers and citizens. The study used random sampling technique to select the sample of the study. Data were collected using structured questionnaires. Quantitative data were analyzed through descriptive statistics such as mean and standard deviation with the aid of IBM SPSS Statistics Version 26.0. Findings revealed information technology is an essential tool in combating drug trafficking in the study area. It was also found that concluded that as a result of information technology, the combating of drug trafficking has been made easier and efficiency through shared information among parties. The study recommends that the government of Zanzibar and Tanzania mainland as well should invest more on having adequate technological tools for identification, tracking and controlling drug dealers in the country.

Key Words: Information Technology, Drug Trafficking, Zanzibar Urban Areas

Assessing the contribution of mobile phone agricultural information on maize productivity: a case study of Kilolo district Tanzania

Mussa T. Kisenia and Edwin M. Kwesig

The purpose of this study is to investigate the contribution of mobile phone agricultural information on maize productivity among smallholder farmers in Kilolo District while taking

into consideration contextual factors that may affect the efficacy of such interventions. By analyzing the potential benefits associated with the dissemination of agricultural information via mobile phones, this study aims to significantly contribute to the academic conversation and practical interventions focused on sustainable agricultural growth in the region. In this study, a cross-sectional strategy was employed as a general framework for the research design process. A cross-sectional study is a type of research approach that involves gathering data at a specific time in order to gather information for analysis and research. This study employed a quantitative research strategy. To gather quantitative information about smallholder farmers' ownership of mobile phones, usage habits, access to agricultural information, and productivity in growing maize, a representative sample of them in Kilolo District will be surveyed. A total of 173 respondents were included in the study's sample population. From the findings, it is established that the primary agricultural information categories accessed by farmers through mobile phones were weather forecasts (62%), pest and disease control strategies (48%), market pricing (35%), crop calendars (47%) and crop practices (39%). It is also established from the research that 65% of the respondents agreed that the data accessed helps in improving their pest and disease management. 7% of the respondents were neutral on the issue. Similarly, 28% of the respondents disagreed. The research established that 82% of the respondents agreed that the accessed agricultural information has enhanced their decision making while 16% of the respondents strongly disagreed. It is also established in the study that 89% of the respondents agreed that accessed information helped in improving their market management while 11% disagreed. The study's findings highlight the important positive contribution that mobile phone agriculture information has had on smallholder farmers in Kilolo District's maize productivity. It is established that both smart and non-smart mobile phones act as a link between farmers and consumers. By fostering informed decision-making, enhancing pest management, and enabling market contact, mobile phone interventions have the potential to greatly improve farmers' livelihoods and increase food security in the region. To maximize the benefits of these interventions and promote sustainable agricultural growth, it will be critical to address the barriers and provide fair and equal access.

Keywords: Mobile phones, Agricultural information, Maize productivity, Smallholder farmers and Cropmanag

The influence of outsourcing billing system on telecommunication companies business performance: a case of Tanzania Telecommunication Corporation headquarter

Mwadawa Said Saadallah and Juma A. Mshana

The objective of the study was are to determine the business processes outsourced and outsourcing strategies used, to establish the relationship between business process outsourcing and performance of telecommunication companies in Tanzania and to determine the challenges facing the implementation of business process outsourcing in the telecommunication companies. The research adopted a descriptive survey. The research targeted telecommunication companies in Tanzania, TTCL. Primary and secondary data was used. Secondary data was collected from financial statements of the telecommunication firms while Primary data was collected using a semi structured questionnaire. The questionnaire was administered through the drop and pick later procedure and the respondents were senior managers and managers in various departments that are involved in outsourcing. The response rate was 96.77%. Data was analysed using both descriptive and inferential statistic consisting of frequency distribution tables and percentages, measures of central tendency such as mean and measures of dispersion such as standard deviation and regression analysis. The study established that most respondents were men. Most of the respondents were managers between reproductive ages of 31-45 years and had post-secondary education. It was also established that BPO has several challenges with the greatest challenge being Loss of control above the corporate business processes and Vendor reputational risk. The study recommends that telecommunication companies look into their outsourced services and re-evaluate the value add to productivity with a view of promoting its contribution to productivity.

Keywords: Business process outsourcing, Business Performance

Assessing the level of awareness among Tanzanians regarding the concept and benefits of e-passports.A case of immigration service department- Kurasini office, Dar es salaam

Edwin Marco Kwesigabo and Daniel James Mwaikambo

The implementation of e-passports is one of the strategies used by the governments to modernize and improve passport services, border control and combat passport fraud. Electronic passport incorporates modern security elements such as biometric data, photo digitization, and machine-readable technology. Despite the government of Tanzania's efforts to curb passport fraud conducting extensive publicity campaigns and public forums to educate citizens about the new passport requirements and procedures, as well as the benefits of the system yet the number of Tanzanians holding e-passports is quite small. This study assess E-Passport awareness level among Tanzanians regarding the concept and benefits of e-passports, taking the experience of the Immigration Services Department- Tanzania. The study involved 148 participants who were passport applicant and staff from immigration department. Simple random, purposive and convenience sampling were used to get participants. The findings revealed that, despite government's actions, applicants continue to be unaware of e-passport. The study found that the majority of applicants were lacking knowledge and public awareness about Tanzania's e-passport, and this hinders applicants' readiness to apply through new electronic passport. This implies that government measures to raise applicants' awareness on the use and benefits of e-Passports are not reaching them. The study suggests the awareness campaigns, education, and programs to improve knowledge of the use and benefits of e-Passports for Tanzanians be prioritized. Also, the IT and Immigration officers at Tanzania Immigration Services Department must work hard to create a user-friendly system that provides clear instructions and guidance throughout the application process.

Keywords: Awareness, E-Passports and Tanzania Immigration Services Department

The impact facing the use of the electronic revenue system: implications for tax compliance in Tanzania's local government authority: a case of selected Mkuranga district council

Kassim Abdallah Mweyo and Juma Mshana

This study investigated the Impact facing the use of the electronic revenue system at the Mkuranga District Council of Tanzania. The study was quantitative in nature thus; data were obtained through questionnaires that were filled by 122 LGCIS personnel of the Mkuranga District Council. Data were analyzed through inferential and descriptive statistics computed through the SPSS data software. It was revealed that the implementation of the electronic revenue system in LGAs has increased the rate of tax compliance. It was revealed that poor

connectivity, limited awareness, lack of technical assistance and limited POS services by tax collectors/payers are the challenges faced. Among others, awareness training and improved connectivity are required to enhance user experience.

Keywords: Electronic Revenue System, Tax Compliance, Efficacy, Accuracy, Transparency and Expertise

External factors contributing to cybersecurity attacks in aviation sector: a case of Tanzania airports authority

Nshamimana Allen Charugamba and Juma A. Mshana

The study aimed to investigate the external factors that contributed to cybersecurity attacks in the Aviation Sector, focusing on Tanzania Airports Authority as a case study. For this research, the explanatory model of cyber-attacks, drawn from Rational Choice Theory, was employed. The study utilized a descriptive research design to gather and analyze data. A mixed research method approach was adopted and the researcher employed convenience sampling technique to select the respondents. Data was collected through questionnaires and interviews as primary sources, while secondary data was obtained from various published and unpublished sources. To analyze the data, descriptive and inferential statistics were performed using the SPSS Version 26.0. The study revealed key external factors contributing to cybersecurity attacks in the aviation sector are outdated software and hardware, lack of unified cybersecurity approaches, globalization, interconnected networks, and increasing data volume pose significant risks. The study established effective strategies to address cybersecurity attacks in the aviation sector. Increasing investment in cybersecurity infrastructure, research, and development was deemed essential. To gain a deeper understanding of the factors contributing to cybersecurity attacks over time, future research should consider adopting a longitudinal research design rather than a descriptive approach.

Keywords: Cybersecurity, Cybercrime, Cyberattack, Aviation Sector, Cyberspace

Challenges facing the establishment of e-learning systems on improving quality of secondary school education in Tanzania

Patience Richard and Adam

The study aimed to assess the influence of e-learning systems on improving quality secondary school education, in the case of selected secondary schools in Dar es Salaam. The study adopted a case study design. The study population was 2950 students, 193 teachers and 1 staff from the Tanzania Institute of Education. Secondary students were about 2756. Purposive sampling was used for selecting staff and students who have knowledge and experience with e-learning for interview while 352 respondents were stratified and randomly selected for responding to structured questionnaires. Both content analysis and descriptive statistics analysis revealed that there are difficulties in establishing e-learning in schools with unreliable power, limited teachers, and limited computer labs. Therefore, the study recommends that there should be upgrading and maintaining technological infrastructure is crucial for a smooth E-learning experience. Also, it recommended seeking funding opportunities or reallocating resources to ensure sufficient investment in technological infrastructure, software, content development, and staff training.

Keywords: E-Learning systems, Technological challenges, Pedagogical challenges, Organizational challenges, improving quality of secondary school education

Cyber security awareness among academic institutions in Tanzania: the case study of Dar es Salaam institute of technology and Tanzania institute of accountancy

Filemon Marwa and Juma A. Mshana

In this era marked by escalating cyber threats, ensuring robust cybersecurity awareness within academic institutions is paramount. There is critical need for heightened vigilance in educational settings, emphasizing the role of proactive measures and comprehensive training to safeguard sensitive data and intellectual assets from evolving digital risks. The study aimed at assessing awareness of cyber security in Academic institutions in Tanzania. Specifically, the study identified the current level of cyber security awareness among academic community in Academic institutions in Tanzania, determining cyber security risks faces academic community in Academic institutions in Tanzania and examining cyber security behavior among academic community in Academic institutions in Tanzania. The study adopted both quantitative and qualitative approach to collect primary data from 377 respondents from TIA and DIT with aid of questionnaires and interview guide selected through stratified random sampling techniques. Data were analyzed using SPSS V26 and presented in descriptive statistics. The study on cybersecurity awareness in Tanzania academic institutions reveals a concerning lack of knowledge and confidence among the academic community. Respondents

show low familiarity with cybersecurity concepts, limited awareness of multi-factor authentication, and gaps in recognizing phishing emails and using strong passwords. Students perceive high risks of phishing, malware, unauthorized access, and disruptions to online learning resources. Addressing these issues requires prioritized cybersecurity education, anti-phishing training, and promoting secure behaviors to enhance the overall digital security landscape within academic institutions. The study concludes a critical need for comprehensive cybersecurity education in Tanzanian academic institutions. Recommendations for Tanzanian academic institutions include implementing comprehensive cybersecurity education, organizing regular training sessions, establishing incident reporting mechanisms, enforcing strong password policies, promoting multi-factor authentication, creating disaster recovery plans, and integrating cybersecurity into the academic curriculum to build a resilient digital environment.

Key Words: cyber security, awareness, cybercrime, cyberattack, cyber threat, vulnerability, cyber risk, cyber behavior.

Potential benefits of blockchain technology in the insurance sector: perspectives from the National Health Insurance Fund (NHIF) Tanzania

Ramadhani H. Chakindo and Maria Lauda Goyayi

National Health Insurance Fund (NHIF) in Tanzania plays a crucial role in facilitating the provision of affordable and easily accessible healthcare services to the population of Tanzania. The operational efficiency, data correctness, security, and openness of the NHIF play a crucial role in the organization's pursuit of its purpose to provide high-quality healthcare services to its beneficiaries. This research seeks to provide insights into the potential benefits of blockchain technology in terms of enhancing security, transparency, and efficiency within the healthcare system of Tanzania. The study adopted the quantitative research approach. The data was thus collected using questionnaires with the target population being employees at NHIF, Tanzania. Data was analyzed quantitatively. The study established that blockchain technology has the potential to significantly alter the operating environment of the National Health Insurance Fund (NHIF) in Tanzania by enhancing data security, optimizing procedures, promoting transparency, and mitigating fraudulent activities. The research findings suggest that integrating blockchain technology within NHIF

Tanzania has the capacity to considerably improve data security, optimize claims processing efficiency, foster transparency, and combat fraudulent activities.

Keywords: Blockchain technology, insurance, claims processing, data privacy and data security

Perceived benefits of integration of existing information systems among church-based organizations: the case of roman catholic church

Revocatusy Anthony Kiphum and Adam Mnyavanu

The study examined the perceived benefits of integration of existing information systems among Church based Organizations. The study was conducted in Tanzania targeting the 34 dioceses of Roman Catholic Church. Descriptive survey research design and mixed research approach was employed in this study. The target population of this study included the Management, ICT officers and church members. A sample size of 143 from a population of 154 was obtained using Krejcie and Morgan (1970)'s table for determining sample size. Both purposive and random sampling techniques were applied to select the sample. Data were collected through structured questionnaires. Both purposive and convenience sampling were used to select sample for the study. Data were collected questionnaire and Key Informants Interviews. Quantitative data were analyzed through descriptive statistics such as mean and standard deviation with the aid of (SPSS version 25.0). Qualitative data were analyzed using content analysis. Findings indicated that among of the key perceived benefits of integration of existing information systems among Church based Organizations includes getting accurate data, getting needed data on time, easy sharing of data, decision making, as well as planning and projections. The study further revealed that other benefits of integration of existing information systems among Church based Organizations is improving efficiency, improving data security and saves time and cost. It was further shown that the church-based organizations were positive about integrating of existing information systems to match with the current development of information and communication technology. The study recommends that to enjoy the perceived benefits of integration of existing information systems, Church based Organizations should put more emphasis in investing on the information and communication technology. Investments should focus on having adequate ICT experts and infrastructure to support the integration of existing information systems. Moreover, the Church based Organizations should regularly train the users on information systems.

Key Words: Integration, Information Systems, Church based Organizations

Examining the measures to mitigate security consequences affecting higher learning students' use of social media: a case of IAA, Dar es Salaam Campus

Ruth Charles Nyonggo and Edwin Kwesigabo

The study assessed the measures used to mitigate security consequences of social media on higher learning students, drawing on a case of IAA, Dar es Salaam. A descriptive research design was employed to collect primary data through questionnaires. A total of 107 student respondents selected from both undergraduate and postgraduate students were obtained. Data were analyzed using SPSS V_26 software. The study revealed that the measures that can be used to mitigate adverse social media impacts include the introduction of social media management education, cyber-security education, inculcating a sensitivity to recording, carrying, and sharing unethical and unauthorized content on social media. The study concludes that social media management and cybersecurity education is vital for equipping students with digital literacy skills. The study recommends that there is a need to integrate cybersecurity educational topics into various curricula across disciplines with a view to inculcate responsive online behavior and digital security. There is also a need to conduct cybersecurity awareness programs tailored to mitigate the risks associated with social media among students pursuing higher learning education, thereby promoting a safer online learning environment. The provision of clear guidelines and policies regarding responsible social media use, the encouragement of unique passwords, and the presence of a dedicated support system for cybersecurity issues underscore the institution's commitment to safeguarding students in their social media interactions.

Key words: Security, Consequences, Higher learning students, social media use

Relevance of ICT practitioner skills of employees in enhancing the utilization of information technologies in public sectors

Sagenge James Sagenge and Juma A. Mshana

This study examined the relevance of ICT practitioner skills of employees in enhancing the utilization of information technologies in public sectors within the Ministry of Culture Arts and Sports – Dodoma offices. Institutional theory was used in this study. In this study, a descriptive research design was adopted, and a mixed-methods approach was utilized,

incorporating both quantitative and qualitative data collection methods. Quantitative data was gathered through close-ended questionnaires, while qualitative data was obtained through face-to-face in-depth interviews. The sample size of 114 participants was selected using both simple random and purposive sampling techniques. For data analysis, descriptive and inferential statistics were employed to analyse the quantitative data, utilizing the SPSS software, while thematic analysis was applied to interpret the qualitative data. Findings revealed a strong positive correlation between Information Technologies Utilization, with ICT Practitioner Skills. The study recommends that the Ministry of Culture Arts and Sports should encourage cross-functional collaboration and knowledge sharing. Facilitating regular knowledge-sharing sessions or workshops where employees with advanced e-business skills can share insights and experiences will promote a culture of learning. Future research should delve deeper into the challenges faced by employees in utilizing information technologies and to inform targeted interventions.

Keywords: Cybersecurity, Cybersecurity Readiness, Cybercrime, Cyberspace, Police

Effectiveness of the social engineering training on improving security of critical data among government employees in Tanzania

Sakina S. Msonde and Kelvin M Njunwa

The study sought to assess the effectiveness of the social engineering training on improving security of critical data among government employees in Tanzania. Employing an explanatory sequential design, it commenced with quantitative data collection and analysis, followed by qualitative data collection and analysis. The study's focus encompassed department heads and employees from key departments, notably Human Resources, IT, and records management. The sampling strategy involved a combination of stratified random and purposive techniques, leading to a sample size of 79 respondents, drawn from a population of 99. Data gathering was conducted through structured questionnaires. The data was subsequently subjected to analysis, employing statistical methods, including descriptive statistics such as mean and standard deviation. The analysis was facilitated through the use of SPSS software, version 26.0. The study yielded significant insights, demonstrating the effectiveness of social engineering training in bolstering the security of critical data among employees. This is attributable to the fact that such training equips employees with the skills to identify indicators and warning signs associated with social engineering, enabling them to

proactively steer clear of potential threats. Furthermore, the study unearthed that social engineering training instills a sense of caution in employees when engaging in communication and information-sharing, thereby diminishing their susceptibility to social engineering attacks. The study recommends active engagement of employees in shaping awareness content. It emphasizes the need for sensitizing employees to employ advanced information security techniques, conducting regular information security awareness programs, utilizing endorsed software, and equipping employees with the necessary skills to detect social engineering attacks.

Keywords: Social Engineering, social engineering training, data security, Government Employees

Level of awareness on the use of unlicensed software among students in Higher Learning Institutions: A case of selected higher learning Institutions in Tanzania

Seth Mwego and Adam Mnyavanu

The implementation of e-passports is one of the strategies used by the governments to modernize and improve passport services, border control and combat passport fraud. Electronic passport incorporates modern security elements such as biometric data, photo digitization, and machine-readable technology. Despite the government of Tanzania's efforts to curb passport fraud conducting extensive publicity campaigns and public forums to educate citizens about the new passport requirements and procedures, as well as the benefits of the system yet the number of Tanzanians holding e-passports is quite small. This study assesses e-Passport awareness level among Tanzanians regarding the concept and benefits of e-passports, taking the experience of the Immigration Services Department-Tanzania. The study involved 148 participants who were passport applicant and staff from immigration department. Simple random, purposive and convenience sampling were used to get participants. The findings revealed that, despite government's actions, applicants continue to be unaware of e-passport. The study found that the majority of applicants were lacking knowledge and public awareness about Tanzania's e-passport and this hinders applicants' readiness to apply through new electronic passport. This implies that government measures to raise applicants' awareness on the use and benefits of e-Passports are not reaching them. The study suggests the awareness campaigns, education, and programs to improve knowledge of the use and benefits of e-Passports for Tanzanians be prioritized. Also, the IT and

Immigration officers at Tanzania Immigration Services Department must work hard to create a user-friendly system that provides clear instructions and guidance throughout the application process.

Keywords: Awareness, E-Passports and Immigration Services

The role of human factors in cybersecurity practices among staff in Tanzanian public higher learning institutions: a case study of selected institutions (DIT, DUCE, and nit)

Martha J. Robert and Edwin Marco Kwesigabo

This paper investigates the influence of human factors on cybersecurity practices in Tanzanian public higher learning institutions, focusing on the DIT, DUCE, and NIT. The methods employed included a descriptive research design, systematic sampling for a sample size of 80 respondents, structured questionnaires, and interviews used for data collection. The data was analyzed using SPSS version 25. Findings indicate that most respondents strongly agreed and agreed to be aware of the cybersecurity risks associated with their roles, suggesting a fundamental understanding of the potential threats. For instance, the majority of respondents agreed that they take cybersecurity seriously and make it a priority in their work, actively participate in cybersecurity awareness programs, are aware of the cybersecurity policies and guidelines in place, understand the potential consequences of a cybersecurity breach, receive regular cybersecurity training to enhance awareness, understand the importance of strong password practices and cautious when handling emails from unknown senders. Other respondents strongly agreed that they know the cybersecurity risks associated with their roles. The study concludes that human factors are pivotal in shaping cybersecurity practices within Tanzanian public higher learning institutions. The study recommends developing and implementing targeted cybersecurity awareness and training programs, investing in monitoring and access controls, and cultivating a continuous improvement and learning culture.

Keywords: Cybersecurity Practices, Human Factors, Higher Learning Institutions, Cyber Threats.

Factors affecting an implementation of biometric sim card registration facing communication agents, in Tanzania a case study of north-Pemba

Suleiman Ali Hamad and Juma A. Mshana

A system for effective security and identification is now becoming more and more popular globally thanks to technology in mobile communication. This study looked into problems with biometric SIM card registration that network agents were having in North-Pemba. Sample sizes of 55 respondents from four selected network agent were used in the study. Data are collected using questionnaire tools and was analysed descriptively and numerically using software like SPSS. The finding show that 82% of respondents suggest that network failures are a major problem for biometric SIM card registration network agents, with 80% having no backup devices and none being maintained. Fortunately, many of them have the education necessary to keep up with technical innovation, with 67% of them regularly reporting network errors to cell providers. In order to do their jobs more efficiently, 46% of them use modern registration equipment, and 69% of them underwent pre-work training. Sixty-five percent of registration network agents in North-Pemba work in an environment that is favourable, with 62% of them receiving helpful support from their employers. In North-Pemba, it was discovered that biometric SIM card registration network agents face socioeconomic, political, technological, and management challenges. As a result, more strategies, such as increased on-the-job training, improved working commission, advocacy, and working commitment, are currently required to sustain proper biometric SIM card registration services.

Key words: Sim card registration, implementation of biometric, biometric sim card registration

E-border system for secured entry and/or exit at border points: reflections from Tanzania immigration services department in Dar es Salaam region

Tale Shunashu Ndonje and Maria Lauda Goyayi

This study aimed at examining the influence of e-Border Management and Control (e-BMC) system on border security in Tanzania. It was guided by the research objective: to examine the influence of e-border system on security. The study was guided by Features of diffusion of innovation theory (DOI) such as relative advantage, suitability, complexity, triability and observability. It adopted a mixed methods research approach and a descriptive survey design.

The targeted sample was drawn from the three stations of Tanzania immigration Services Department in Dar es Salaam region namely, the Julius Nyerere International Airport (JNIA), Dar es Salaam Port and Kurasini Immigration offices. A total sample of 130 respondents were drawn. The study made use of questionnaires, and interviews to gather primary data. With the help of SPSS version 20, descriptive and cross tabulation analysis were carried out on the quantitative data. Moreover thematic analysis was used on the qualitative data. The findings revealed that e- border system improved the level of Security at the entry points increased efficiency and enhanced border services by eliminating lengthy waiting times. However, findings also revealed that e-border system was not very effective in detecting imposters and preventing unlawful immigration. Moreover, network problem, system failure to generate control number, power outage and failure of the system to update passenger information hindered smooth border operations. The study recommends improvement on detection capabilities of e-BMC and strengthening of training and resources for immigration officers. Moreover, the immigration department is advised to perform regular system updates and maintenance and regular system evaluations and audits to ensure e-BMC handles any emerging immigration needs.

Keywords: Relative advantage of e-BMC, Suitability of e-BMC, Complexity of e-BMC, Triability of e-BMC and Observability of e-BMC

Impact of web-conferencing technologies on collaborative practices in parastatal organizations in Tanzania: A Case of Tanzania Civil Aviation Authority

Thobias. A. Albert and Juma Ally Mshana

The primary objective of this study is to fill a significant information gap by examining the perceptions of personnel working in Tanzanian parastatals regarding the utility of web-conferencing technology. This study seeks to offer helpful advice for enhancing the integration of web-conferencing technology into enterprises by obtaining insights into employee attitudes, problems, and preferences. The research methodology employed in this study was a quantitative technique. The study's target demographic consisted of the employees at the Tanzania Civil Aviation Authority. The sample population for the research included 52 respondents. The data was gathered through the utilization of online questionnaires that were disseminated using the Google platform. Quantitative data analysis was performed, and the findings were presented in tabular and graphical formats. The research findings suggest that personnel working in Tanzanian parastatals usually hold a

positive perception of web-conferencing technologies, viewing them as valuable tools for improving communication and fostering collaboration. The presence of positive attitudes is mitigated by many constraints pertaining to connectivity, technology knowledge, and the requisite support from organizations. Based on the findings, it can be inferred that individuals working in Tanzanian parastatals hold a positive perception of web-conferencing technologies, considering them as valuable tools that effectively contribute to improved communication, collaboration, and work-life balance.

Keywords: web-conferencing, parastatal, employees, collaborative practices and communication

Factors affecting employees' compliance with information security features in healthcare institutions: a case of Muhimbili national hospital

Tumaini Evason

The purpose of this study was to assess the factors affecting employee compliance to information security features at Muhimbili National Hospital. The study was specifically aimed to determine the effects of organization security policies, security awareness, management support and employee commitment on the employee compliance to information security features. In this study a quantitative research approach. The researcher employed questionnaire to collect data which was administered to 217. The researcher also employed a SPSS to analyze data in which frequency distribution, descriptive statistics, inferential statistics and multiple regression was employed. The findings of this study showed that organization security policies (OSP) had ($r = .065$ and $p, <.003$), which shows that organization security policies had a positive correlation to the compliance to security challenges because it had a p-value which was less than 0.05 %. Also, it was noted that Employee Awareness Level had a correlation of ($r = .281$, $p, <.000$) this also show that there was a positive correlation between employee awareness level and the compliance to security features since p-value was less than 0.05%. On the other hand, it was shown that Employees Commitment had correlation of ($r = .515$, $p =.000$) this also means that there was a positive correlation between employee commitment and compliance to the security policies. Lastly Management Support had a correlation of ($r = .449$, $p = .000$) this means that there was a positive correlation between management support and compliance to security features. Therefore, this study recommended for provision of regular training sessions and awareness programs are essential to keep employees informed about the importance of security features and their roles in maintaining them. Also, information security features are tool complex or

difficult to use, employee may be less likely to comply. User friendly systems and interfaces can contribute to better adherence to security protocols, regular feedback and monitoring of employee compliance can serve as deterrent and help identify areas that may require additional training or clarification. It can also reinforce positive behavior and compliance. Moreover, the study also recommends that organization culture plays a significant role on the enhancement of compliance to information security features since it prioritizes security which is likely to have employees who are more compliant.

Awareness of social engineering attacks among students in higher learning institutions: a case study of the institute of accountancy Arusha

Upendo Gowele and Edwin Kwesigabo

The study assessed the ways that can be used to raise awareness of the social engineering attacks among students in higher learning institutions, drawing on a case study of the Institute of Accountancy Arusha. The study deployed descriptive research design and quantitative approach. The study population constituted 572 undergraduate and 416 postgraduate students. A sample size of 91 was selected through stratified random sampling technique. Data were collected from the Institute of Accountancy Arusha, Dar es Salaam Campus students through structured questionnaires. Descriptive statistics such as mean and standard deviation were used to analyze the data with the aid of the SPSS software, version 20.0. Findings revealed that the best ways that can be used to raise awareness of social engineering attacks among students in higher learning institutions include cyber security awareness training at least once per every semester, establishing proper communication among students, sharing experiences and simulation of social engineering attacks. The study recommends that Universities have to incorporate it into curriculum courses related to social engineering awareness attacks rather than movies and games which have proven to be ineffective in raising such awareness. The study also recommends a need to conduct classroom training and seminars about social engineering attacks, enhancing proper communication among students and reporting of social engineering incidents.

Key Words: Awareness, Social Engineering Attacks, Students, Higher Learning Institutions

Challenges of electronic data protection on governance of health services: a case of government of Tanzania hospital management information system

Vivian Emanuel Msafiri and Kenneth Mlelwa

The efficient and effective electronic data protection on performance of health governance across the globe is critical to overcome the challenges of providing health services. Despite the trend of ICT reforms in Tanzania since 2003, the electronic data protection practice is still weak in the studied areas. The study employed exploratory, descriptive survey methodology and deductive approach. The study involved 172 respondents from some regions of Tanzania. The Statistical Package for Social Sciences (SPSS) was used to analyze data. The results shown that to large extent electronic data protection in the studied areas is inconsistency with the best practices in: administrative controls, technical controls and physical controls. The main attributing factor is the misconception of what it entails by electronic data protection. The study recommends: to review the current personal and privacy data protection law to reflect the realities of electronic data protection.

Keywords: Electronic data protection, health governance, data vulnerability and Government of Tanzania Hospital Management Information System.

The influence of HRIS ease of use on user adoption at the Mkuranga district council

Vivian Ernest Kessy and Juma Ally Mshana

The study assessed the influence of HRIS ease of use on user adoption at the Mkuranga District Council. The study employed mixed research approach where case study design was employed while thematic and SPSS were utilized as data analysis techniques. The study findings collectively underscore the multifaceted nature of HRIS adoption. Factors like ease of understanding, navigational ease, learning curve, and user interface design, along with regression analyses, provide a comprehensive perspective on the decision-making process surrounding HRIS adoption within the organization. The study recommends for the need of Implementing comprehensive training programs that focus on imparting a deep understanding of the HRIS system's functionalities and features. Through addressing concerns related to the learning curve and ensuring employees are comfortable with the system, the organization can increase the likelihood of successful adoption and minimize resistance.

Keywords: - HRIS, Ease of Use and Mkuranga District Council

Examining the effectiveness of information system audits in government agencies: a comprehensive analysis of public institutions

Patrick Joseph and Frank Sengati

This research endeavors to assess the effectiveness of information system audits within Tanzanian government agencies. Employing a mixed-method research approach integrating quantitative and qualitative data collection methods, the study delves into the frequency of audits, challenges faced in implementing recommendations, and the overall efficacy in managing IT risks. Findings underscore the imperative for enhancing audit frequency, advocating for standardized schedules to facilitate comprehensive assessments. Identified challenges in implementation, encompassing resource constraints and organizational resistance, necessitate a multifaceted strategy involving increased investment and capacity-building initiatives. The evaluation of audit effectiveness unveils commendable aspects alongside areas for improvement, warranting a proactive risk-based approach aligned with technological advancements. The study posits crucial recommendations, including the establishment of standardized audit frequencies, capacity-building endeavors, resource allocation optimization, cultivation of a compliance culture, and the adoption of a proactive risk management approach. These proposals aim to elevate information system audit practices, fortify cybersecurity measures, and contribute to overall resilience in Tanzanian government agencies

Evaluating the role of e-commerce in reducing operational cost in private organization in Tanzania: a case of mount Meru hotel

Loshiya O. Leyan and Thadei Kiwango

This study evaluating the role of e-commerce in reducing operational costs of Mount Meru Hotel. The study applied a mixed method research approach through a combination of questionnaires and key informant interviews. The study involved a sample size of 80 respondents who are staff working at Mount Meru Hotel. Data were analyzed through descriptive statistics and content analysis. Findings from the study reveal that Mount Meru Hotel e-commerce in reducing operational costs. It has become a fundamental tool for enhancing their operational efficiency and shown its potential to reduce operational costs in areas such as inventory management, procurement, marketing, and customer service also e-commerce has allow the Hotel to offer enhanced customer experiences by providing online booking platforms, faster check-in/check-out processes, and personalized promotions. These

improvements have led to increased customer satisfaction and loyalty. Furthermore, the study highlights that e-commerce has improved transaction processing speed, enhanced inventory management and order fulfillment, reduced manual errors, and streamlined communication and collaboration among different departments. In conclusion, the research indicates that e-commerce can play a significant role in reducing operational costs in Mount Meru Hotel. By embracing e-commerce, addressing challenges, and implementing the recommended strategies, private organizations can enhance their efficiency, competitiveness, and overall performance in the Tanzanian market.

Keywords: e-commerce, role of e-commerce operational cost

The Impact of Social Media Use in the Learning Process of Primary School Students in Dodoma City

Mohamed Ally and Happiness Mkumbo

The study examined Impact of Social Media Use in the Learning Process of Primary School Students in Dodoma City. Employing a mixed research approach and a descriptive research design, the researcher gathered data through questionnaires and interviews, with a sample size of 79 determined using Slovene's formula. Validation and reliability checks were conducted on the data collection tools. Data analysis, performed using SPSS version 20, involved presenting results in frequencies, percentages, means, and standard deviations. The study found that elementary school pupils use Facebook, YouTube and Twitter, among other social media sites. Nonetheless, Facebook, YouTube and Twitter were the most popular options among students. These social media sites were mostly used for movie watching, friend chats, and communication. The study concluded that social media has impact on learning process of primary school students. The study recommends that parents, educators, and the society at large assume responsibility for counseling students on how to use social media platforms for educational reasons.

Keywords: Social Media Use, Learning Process, Primary School Students, Tanzania

Evaluating the influence of digital technology on revenue collection in Ifakara town council, Tanzania

John Mvanga , Edison Lubua and Adam Aloyce Semlambo

This study explores the impact of digital technology on revenue collection in Ifakara Town Council, employing a case study design and qualitative research approach. Leaders and management personnel participated through unstructured, open-ended questionnaires, and data saturation was anticipated with approximately 30 participants. The study utilized content and narrative analysis techniques to extract insights. Findings indicate that digitalization has significantly enhanced efficiency, transparency, accountability, and reduced fraud, leading to cost savings in revenue collection processes. The Ifakara Council Administration is recommended to invest in improving internet infrastructure, and managers should prioritize comprehensive training programs for staff on digital systems. Additionally, policy makers are encouraged to establish standardized regulations for digital payment systems.

Keywords: Efficiency, Transparency, Accountability, Fraud, Cost Savings, Revenue Collection Processes.

The contributions of information communication technology on the performance of small businesses in Tanzania: a case of Ubungo district in Dar es Salaam region.

Happiness Mkumbo and Jeremia Kivelege,

This study aimed to assess the Contribution of Information Communication Technology on the Performance of Small Businesses in Tanzania”. A case of Ubungo district in Dar es Salaam Region. The study expected to use three objectives which are: to examine the extent of ICT adoption by Small Businesses in the Dar es Salaam region, to explore the challenges of ICT adoption by Small Businesses in the Dar es Salaam region, and to explore strategies for enhancing ICT adoption in performance of Small Business in Dar es Salaam Region. This study used a descriptive research design. The researcher employed a simple random sampling technique to select samples for representation in the study as well a purposive sampling technique was employed. Both primary and secondary data were employed in this study. The analysis of data is based on descriptive statistics. Data collection methods used interviews and questionnaires, in research approach both qualitative and quantitative approaches, were employed, The targeted population is 110 respondents, sample size is 86. The main goals of the study were to determine the degree to which ICT adoption has

impacted small business performance. The majority of respondents believed that ICT had a stronger impact on their organizations' performance, indicating the strong correlation already identified between ICT usage and small business performance. The study concludes that This means that these small businesses are not going to benefit much from the technologies that are now available, thus more work has to be done to ensure that they get the most out of the technologies as well as a competitive edge and business growth. The study recommends increasing efforts by the government to improve infrastructure, such as fiber optic projects, in order to provide a favorable environment for the use of ICTs.

Keywords: Information communication technology, performance, small business

Examining the effectiveness of information system audits in government agencies: A comprehensive analysis of public institutions

Patrick Joseph and Frank Sengati

This research endeavors to assess the effectiveness of information system audits within Tanzanian government agencies. Employing a mixed-method research approach integrating quantitative and qualitative data collection methods, the study delves into the frequency of audits, challenges faced in implementing recommendations, and the overall efficacy in managing IT risks. Findings underscore the imperative for enhancing audit frequency, advocating for standardized schedules to facilitate comprehensive assessments. Identified challenges in implementation, encompassing resource constraints and organizational resistance, necessitate a multifaceted strategy involving increased investment and capacity-building initiatives. The evaluation of audit effectiveness unveils commendable aspects alongside areas for improvement, warranting a proactive risk-based approach aligned with technological advancements. The study posits crucial recommendations, including the establishment of standardized audit frequencies, capacity-building endeavors, resource allocation optimization, cultivation of a compliance culture, and the adoption of a proactive risk management approach. These proposals aim to elevate information system audit practices, fortify cybersecurity measures, and contribute to overall resilience in Tanzanian government agencies.

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Keywords: Efficiency, Transparency, Accountability, Fraud, Cost Savings, Revenue Collection Processes.

The contributions of information communication technology on the performance of small businesses in Tanzania: a case of Ubungo district in Dar es Salaam region

Jeremia Kivelege, J and Happiness Mkumbo

This study aimed to assess the Contribution of Information Communication Technology on the Performance of Small Businesses in Tanzania". A case of Ubungo district in Dar es Salaam Region. The study expected to use three objectives which are: to examine the extent of ICT adoption by Small Businesses in the Dar es Salaam region, to explore the challenges of ICT adoption by Small Businesses in the Dar es Salaam region, and to explore strategies for enhancing ICT adoption in performance of Small Business in Dar es Salaam Region. This study used a descriptive research design. The researcher employed a simple random sampling technique to select samples for representation in the study as well as purposive sampling technique was employed. Both primary and secondary data were employed in this study. The analysis of data is based on descriptive statistics. Data collection methods used interviews and questionnaires, in research approach both qualitative and quantitative approaches, were employed, the targeted population is 110 respondents, sample size is 86.

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Keywords: Information communication technology, performance, small business

Securing motor insurance claims: designing an enhanced block chain framework for fraud mitigation through metadata analysis

Mwemezi Alphonse Ndibalema and Hamad Hiza Amdani

Motor insurance claim fraud globally presents a substantial challenge, causing significant financial losses for insurers. Blockchain technology, renowned for its transparency and immutability, emerges as a promising solution across various sectors, including insurance, by enhancing trust and accountability. The Tanzanian insurance industry, still reliant on manual data acquisition, faces vulnerability to tampering and lacks transparency. This cross-sectional study employs a mixed-method approach, combining qualitative interviews and quantitative questionnaires, revealing that the crucial metadata for blockchain effectiveness in mitigating fraud is the time of the accident, identified by 54% of respondents as easy to modify and 67% as the most frequently modified. The study recommends obtaining this metadata from digital photos of claim events for automation, preserving it with cryptographic hashing to ensure tamper-proof security. Stored in the blockchain from claim event through intimation and the entire claim process, this proposed framework aims to mitigate motor insurance claim fraud in the Tanzanian insurance industry, leveraging blockchain features for transparency and security.

Threat assessment in using mobile devices in accessing banking services in Tanzania the case of people's bank of Zanzibar (PBZ)

Hamza Mohamed and Allan Msolla

The study assessed threat assessment in using mobile devices in accessing banking services in Tanzania. It was guided by three predicting variables tested on banking services access as the dependent variable namely operational efficiency, security enhancement and information clarity. The study was performed using explanatory study design whereas causality relationship was conducted to generate new knowledge on the inquired subject. Data were collected from People's Bank of Zanzibar (PBZ) through employees using structured questionnaires from the sample of 81 participants. The data were assembled and grouped altogether such that were computed in SPSS version 23.0 for the generation of relevant statistical tests to present the results of the study. On top of that, descriptive statistics were generated to show the demographic features of the respondents on the banking employees in Tanzanian context. Besides that, correlation and multiple regression analysis were also used to show the existing relationship between study variables in filling the inquiry gap. Study results were evident that all three independent variables namely operational efficiency, security enhancement and information clarity have all been revealed positive with significant effect on banking services access as the dependent variable. This therefore implies that banking services access through threat assessment in Tanzania banking sector is influenced with operational efficiency, security enhancement and information clarity.

Factors Affecting the Effectiveness of Hospital Management Information System; A Case of GoT-HOMIS in Dodoma Region

Stephano Amoni and Thadeo Kiwango

The present study assessed factors affecting the effectiveness of the hospital management information system at six District hospitals in the Dodoma Region. Specifically, the study focused on examining the effect of service quality, system quality, and information quality on the effectiveness of the Government of Tanzania Hospital Operation Management Information System (GoT-HOMIS). The study used a case study research design and a quantitative research approach. Questionnaires were used to collect data from 190 respondents selected through probability sampling. The collected data was analyzed using descriptive statistics analysis and correlation analysis to ensure data quality, validity, and

reliability. The findings of the study revealed that service quality, system quality, and information quality had a positive and significant impact on the effectiveness of the GoT-HOMIS. The study concluded that the effectiveness of the GoT-HOMIS is significantly influenced by the quality of services provided, the system, and the information. Therefore, the study recommends that improving service quality, system quality, and information quality should be prioritized to maximize the effectiveness of the GoT-HOMIS. Also, to preserve the integrity of the data in the system and reduce mistakes and discrepancies, regular data quality assessments and validation checks should be put in place. To maximize the use and impact of the system, healthcare staff must also receive ongoing training and thorough support. In this way, an environment can be created where the GoT-HOMIS can be an invaluable tool for better decision-making and healthcare management.

Keywords: Hospital Management Information System, System Quality, Information Quality, Service Quality, and effectiveness of HMI

Resilience in higher learning institutions in Arusha: managing business continuity and recovery in the face of cyber disasters

Fredy Amon and Pamela Chogo

The advent of the internet has transformed global communication, with a vast portion of the world's population participating in online activities. However, this digital age has also witnessed a surge in cybercrime, with projected costs expected to reach staggering figures. The study explores the preparedness of higher learning institutions in Arusha, Tanzania, to rebound from cyber disasters. As cyber threats continue to evolve, organizations must establish comprehensive strategies for managing attacks, facilitating recovery, and maintaining a state of readiness. Cybersecurity preparedness is the foundation for effective post-cyber disaster recovery. It acts as a proactive defense mechanism, enabling organizations to adapt swiftly to evolving threats and reduce their impact on operations. Implementing a robust cybersecurity framework, such as the ISO 22301:2019 business continuity model, can minimize downtime even in the event of a cyberattack. In conclusion, this study emphasizes the importance of cybersecurity preparedness in higher learning institutions. It sheds light on the need for a structured framework like ISO 22301:2019 to ensure uninterrupted operations and self-assessment. Effective cybersecurity measures are essential for safeguarding digital assets, reputation, and overall stability.

Keywords: Cyber security resilience, ISO 22301:2019 Business Continuity framework, Cyber disaster recovery

Assessing the impact of information technology adoption on agricultural business: a case study of Kilombero district Tanzania

James Benard Ngahemelwa

The agricultural sector in Tanzania, particularly in the Kilombero District, has witnessed a transformative era with the integration of Information Technology (IT). This study explores the impact of IT adoption on agricultural business in the region, emphasizing its implications for local farmers and the broader agricultural sector. The use of digital tools, including mobile applications, data analytics, and Machine Learning, has streamlined transactions and expanded market reach, empowering smallholder farmers to enhance their income and contribute to food security and economic growth. However, challenges such as limited access to information, a shortage of smartphones, and capacity constraints hinder the widespread use of digital tools among local farmers. The study employs the Technology Acceptance Model (TAM) as a theoretical framework to analyze the factors influencing farmers' adoption of IT. The research, conducted through a mixed-methods approach, reveals demographic information, adoption of ICT tools, internet usage patterns, and the impact of IT adoption on agriculture. Findings highlight the positive perception of IT tools, with a majority of farmers experiencing benefits such as improved crop yield, enhanced market access, and increased income. Despite challenges, there is a strong inclination among respondents to receive training and support to improve their IT skills. Recommendations include targeted measures for gender inclusivity, infrastructure development for internet accessibility, and ongoing training and support mechanisms to overcome challenges in IT adoption. The study also suggests comprehensive gender analysis and longitudinal studies for a nuanced understanding and assessment of the long-term impact of IT adoption in agriculture.

The contribution of digital marketing adoption on SMEs sales performance in Iringa municipality in Tanzania

Mbonea Luka, Adam Semlambo and Karisha Kavuta

The study aimed to assess the contribution of digital marketing adoption on the Sales Performance of Small and Medium Enterprises (SMEs) in Iringa Municipality. To address this overarching objective, two specific objectives were formulated which were to assess the impacts of email marketing and mobile marketing on SMEs' business Sales Performance. This research employed quantitative research methods by utilizing an explanatory research design. The sample size comprised 306 individuals serving as heads or leaders of SMEs in Iringa Municipality. Data collected were analyzed using multiple regression. Findings revealed email marketing had a negative and insignificant relationship with the Sales Performance of Small and Medium Enterprises while mobile marketing had a positive and significant relationship. Since mobile marketing significantly contributes to Small and Medium Enterprises' Sales Performance, the study recommends that mobile marketing should be applied more extensively to enhance the Sales Performance of Small and Medium Enterprises in Iringa Municipality. Email marketing was found to have a negative and insignificant contribution to Small and Medium Enterprises' Sales Performance; knowledge on the use of email should be provided to Small and Medium Enterprises in Iringa Municipality.

Key Term: Email Marketing; Mobile Marketing; SMEs' Sales Performance

The impact of information and communication technology use on secondary school students' academic performance a case study of Njombe town council

Mathias Thadei Mlelwaand Ayoub Mswahili

The study was to investigate the impact that Information and Communication Technology has had on students' overall academic performance, with a particular study of Njombe town Council in Njombe Region, Tanzania. Back to the reason of the study area and population; the integration of Information Communication Technologies in secondary school education has become increasingly widespread in recent years. The development of Information

Communication Technologies has made teaching and learning easier, especially for secondary schools where the students can learn themselves or through interaction with their teachers. The Information Communication Technologies opened the door for educational institutions such as secondary schools to harness and use technology to supplement and support the teaching and learning process. However, the impacts of Information Communication Technologies use on students' academic achievement are still being debated to academicians in Tanzania. Therefore, Njombe Town Council is not an isolated island from the debate about the impacts of Information Communication Technologies use on secondary pupils' academic performance.

Key words: Information and communication technology, academic performance.

Assessing Technological Factors Obstructing Cybersecurity Readiness in Public Sector: A case of Police Force – Kilimanjaro Headquarters

Jeremia Thomas Mushi and Joy Joseph

This study examined the technological factors obstructing cybersecurity readiness within the Police Force – Kilimanjaro Headquarters. Institutional theory was used in this study. This study utilized a descriptive research design and a quantitative research approach to investigate a population of 361 police personnel. The researcher employed simple random sampling to gather primary data through closed-ended questionnaires, while secondary data was acquired through documentary review. Data analysis was conducted using SPSS version 26, encompassing both descriptive statistics to present frequencies and percentages, and inferential statistics for exploring variable relationships, specifically through regression analysis. The study revealed technological factors, including outdated infrastructure and inadequate security systems, hindered cybersecurity readiness. Based on the findings, it is recommended that the Police Force invest in upgrading their technological infrastructure and enhancing their security systems. Further research is needed to explore the effectiveness of the recommended measures and their impact on improving cybersecurity readiness within the public sector. Additionally, comparative studies across various government entities in Tanzania can provide a broader perspective on the challenges and solutions in enhancing cybersecurity readiness.

Keywords: Cybersecurity, Cybersecurity Readiness, Cybercrime, Cyberspace, Police.

The Role of Digitization of the Billing System on Customer Satisfaction within TANESCO – Tabora Region

Peter Edward Mmbaga and Edison Lubua

This study examined the role of digitisation of the billing system on customer satisfaction within TANESCO. The Technology Acceptance Model (TAM) was employed. A descriptive research design and a quantitative research method were employed for this investigation. The target population consisted of customers from the TANESCO – Tabora region Offices across all departments, and random sampling was employed. Primary data was obtained using a systematic questionnaire, while secondary data was gathered through documentary review. The quantitative data obtained through the questionnaire were analysed using inferential and descriptive statistics with Statistical Package for Social Sciences (SPSS) version 26. The study found a moderate positive correlation between digitalising the billing system and customer satisfaction, indicating that digitisation improves billing and positively impacts satisfaction. The study recommends that TANESCO expand digitisation efforts for customer satisfaction, focusing on transparency, streamlined processes, and user-friendly interfaces while actively seeking feedback. Future research should include cross-industry comparisons to understand digitisation's impact on customer satisfaction in utility sectors like water, gas, and telecommunications.

Keywords: Digitalization, Billing System, Customer Satisfaction, Technology, Electricity.

Factors impeding successful usage of learning management system in higher learning institutions. A case of a medical institution in Moshi, Tanzania.

Heavenlight P. Luzinge and Frank Sengati

Globally, there is a rapid change in information and communication technologies which brings a lot of benefits to Higher Learning Institutions. The beneficial tools facilitated by such technologies is the learning management system which use the technology to assign courses to employees to ensure they are developing effective job skills, remain informed about product changes and maintain relevant knowledge through compliance training. The study conducted at Kilimanjaro Christian Medical University College at Kilimanjaro where 96 students and academic staff were reached by the study through questionnaire guide with the aim of investigating the factors impeding successful usage of learning management

system in higher learning institutions. The study reached 96 respondents; 63.5% were female and 36.5% were male and 86.5% had been there for 0-5 years. Majority (83 of 96) reached had degree education level. Findings depicted that there is a significant linear relationship between the usage of learning management system to the employees' competence, technological features and management support. User competency, management support and technological feature impends the successful usage of learning management system in higher learning institutions. The study confined only to 96 students and the academic staff at Kilimanjaro Christian Medicine University College. This leaves a gap that must be addressed based on the research field. Furthermore, the institutions should provide and improve the infrastructure, working facilities and technical skills to system users so as to equip them with upgraded and necessary skills to ensure the system are friendly to users.

Factors affecting implementation of government of Tanzania hospital management information system: a case study of Butiama district health facilities

Julius Marwa and Happyness

The Hospital Management Information System (HMIS) is very beneficial for the effective and efficient service delivery in healthcare facilities and the constant assessment of the HMIS system adopted by any healthcare facility ensures its successful implementation. Since the launch of GoT-HoMIS in Butiama district council health facilities, no assessment has been conducted on it despite its low implementation with only 5 out of 39 health facilities are using it. Therefore, this study aimed to assess factors affecting implementation of GoT-HoMIS. The study employed mixed approach and convergent parallel design. A total of 120 respondents took part in the study; 72 healthcare workers, 35 patients and 13 Health Council management Team. The respondents were sampled using simple random, convenient and purposive techniques. Questionnaires, interview and documentary review were used to collect data. The content and face validity of the instruments were evaluated by experts. Reliability tested and it correlated at Cronbach's coefficient alpha $r = 0.976$ hence was reliable since r was greater than 0.75. The Quantitative data was analyzed using descriptive statistics in the SPSS version 20.0 and the results were presented in tables of frequencies and percentages while Qualitative data was analyzed using thematic coding. The study revealed that; stakeholders' awareness on the system's availability, its use, benefits and how to use it affect implementation. Moreover, ICT infrastructure like supply of electricity, network coverage, internet linkage and ICT facilities also influenced the implementation. To enhance the

implementation, awareness creation,, and elimination of the barriers should be done, and the security of the system should improve. The study recommended that adequate funds should be allocated to the health facilities, review of the policy for the implementation and awareness on the system should be made to the public and stakeholders.

Keywords: Healthcare, Hospital Management Information System, Information communication technology

Service quality delivery on agency banking performance: a case of equity agency banking in Mwanza municipal.

Maleva Kaduma and Happiness L. Mkumbo

Despite high extent of financial institutions contribution to the National economy still service quality is very important to be considered. Therefore, the study assessed the service quality delivery on agency banking performance: A case of equity agency banking in Mwanza municipal. The study aimed at assessing the effect of services quality delivery on agency performance at equity agency banking in Mwanza Municipal. The study was guided by Bank-Led Theory. This study employed a cross-sectional research design. Data were collected from the sample size of 373 respondents. The study also employed both primary and secondary data to gather information from the respondents. The study applied mixed approach where that is qualitative and quantitative approach. Quantitative data were analyzed using descriptive statistics such as frequencies and percentages. Qualitative data were analyzed using content analysis (thematic) analysis. The findings of the study revealed that high reliability on agency banking increase agency performance. The study findings also showed that the higher level of customer confidence on agency banking services increase agency banking performance, the study findings also showed that good convenience of agency banking services improve agency banking performance and the study showed that the good agency banking service location improve the performance of agency banking. The key recommendation of the study was that the current agency banking business model should be expanded and innovated by increasing other services which are not found on agency banking POS such as payment of bills, mini statement, and improvement of Equity agency banking Point of Sale (POS).

Keywords: Service quality, equity agency and service delivery.

Assessment of Trainees' Prospects on Enrolment in Carpentry and Joinery Trade in Tanzania. A Case of TABORA Vocational Training Centre

Michael Goshu and Allan Msolla

Applies the Rational Choice Theory and Career Indecision Theory to explore factors influencing low enrollment in Carpentry and Joinery at Tabora RVTSC. With a sample size of 48 respondents, the study employs questionnaires and descriptive analysis. Findings indicate that factors like Expectation of Future Career Path, Influence of Other Stakeholders, and Expectation of Future Employment significantly affect enrollment. Negative student perceptions necessitate addressing misconceptions. Recommendations include continuous curriculum reviews, government restrictions on furniture imports, and stakeholder efforts for awareness and perception modification. The study underscores the importance of considering these factors in program design to boost enrollment and program success.

Key Words: Trainees' Prospects, Carpentry and Joinery

The current legal framework for cybercrime prevention within Kinondoni Municipal Council

Mwajuma Hassan Seif and Samwel Nyamanga

This study aims to assess the existing legal framework and propose improvements, considering Kinondoni's unique context. A descriptive research design and a qualitative research approach were employed to investigate the current legal framework's effectiveness for cybercrime prevention within Kinondoni Municipal Council. Questionnaires were distributed to 95 respondents, including businesses, individuals, and stakeholders within the municipality. Thematic analysis was used to identify recurring themes in the qualitative data. The findings indicate a mixed perception among respondents regarding the adequacy and effectiveness of the current legal framework for cybercrime prevention within Kinondoni Municipal Council. While a majority expressed confidence in the framework, a notable minority disagreed. This diverse response highlights the need for an inclusive review and potential reforms to address potential shortcomings in the existing legal measures. Similar diverse responses were found concerning the effectiveness of the existing cybercrime laws, highlighting the importance of efficient enforcement and implementation mechanisms. The study emphasizes the importance of regularly updating legal frameworks, efficient enforcement and implementation mechanisms, and public awareness and education initiatives to enhance compliance and cooperation in cybercrime prevention. These findings align with

broader research in the field, underlining the significance of comprehensive and up-to-date legal frameworks in deterring cybercrimes and raising public awareness to strengthen prevention efforts.

Keywords: Cybercrime, Legal Framework, Kinondoni Municipal Council, Cybercrime Prevention, Enforcement Mechanisms, Public Awareness.

Impact of Performance Expectancy on the Adoption and Utilization of ICT Systems in the Public Sector: A Case Study of the Immigration Department, Ministry of Home Affairs, Dar es Salaam, Tanzania

Mwita Mwikwabe and Joy Joseph

This study investigates the adoption and utilization of Information and Communication Technology (ICT) systems within the Tanzanian Immigration Department, exploring the challenges, opportunities, and implications for public administration. The research aims to assess the current level of ICT adoption, evaluate employee perceptions of performance expectancy, and identify barriers hindering effective utilization. Employing a sample of 40 participants, the study utilizes a descriptive analysis approach, presenting frequency, percentages, mean, and standard deviations. Findings reveal a diverse landscape of ICT adoption, with 37.5% exhibiting high adoption, 50% moderate, and 12.5% low. Thematic analysis uncovers enthusiastic embracement, cautious optimism, and resistance/skepticism as prevalent attitudes toward ICT. Employee perceptions of performance expectancy indicate a majority (75%) expressing strong agreement or agreement, emphasizing optimism about ICT systems' effectiveness. Identified challenges and barriers include insufficient resources (37.5%), lack of training (25%), resistance to change (20%), and technical issues (17.5%). Thematic analysis underscores concerns over resource constraints, training deficiencies, and resistance to change. Implications for the Immigration Department include targeted interventions addressing varying levels of acceptance and concerns. Recommendations encompass leveraging positive outlooks, tailored training initiatives, and change management strategies. The study contributes to the literature by offering context-specific insights into ICT adoption within immigration management, employing the Technology Acceptance Model and Unified Theory of Acceptance and Use of Technology as theoretical frameworks.

Keywords: ICT adoption, Immigration Department, public administration, performance expectancy, challenges, opportunities.

Assessment of factors affecting financial management information system in local government revenue collection; A case study of Njombe district council.

Peter Edson and Happiness L. Mkumbo

In Tanzania, the Financial Management Information System has been in use since 1998 and it is one of the first systems of its kind in East Africa. It has proven to be very beneficial as a central payment, accounting, and reporting system, and it has been pushed out to all Ministries, Departments, and Agencies (MDAs), sub-treasuries, and Regional administrations, as well as numerous Local Government Authorities around the country. The study assessed factors affecting financial management information system in local Government revenue collection. The findings revealed financial management information system plays a vital role in revenue collection at Njombe District Council. But, there were various challenges associated with implementation of the system which were poor infrastructure and working facilities, poor financial records, insufficient resources include skilled and professionalism, little acceptance of the officers to new introduced system and use the same revenue sources to increase fines, charges and fees to tax payers with little identification and mobilization of new sources. To solve the problem of poor revenue collection, the Central Government has to improve the performance of the financial management information system through infrastructure and working facilities. The Local Government; the Councilors, WEO's and VEO's to create awareness and engage the community in identification and mobilization of revenue sources.

Key words: Financial management information system, revenue

Performance evaluation of machine learning classification models for predicting maternal mortality in Tanzania

Radislaus Majigo

The study performed performance evaluation of machine learning classification models to predict maternal mortality in Tanzania. The classification models evaluated were the Logistic regression, Support Vector Machine (SVM), Artificial Neural Network (ANN) and Random Forest (RFF). The study employed a retrospective cross-sectional research design and collected secondary binary data covering a period of three years from 2020 to 2022 whereby a total of 76,227 women were recorded in The Health Information Management System

(HIMS), so the sample of the study. The performance evaluation results revealed that logistic regression, Artificial Neural Network, and Support Vector Machine predicted maternal outcome accurately by 99.36%, 93.36%, and 99.96% respectively while, Random Forest predicted accurately by 100.0%. In that regard, the study suggested the random forest model as the best model for predicting maternal outcome in Tanzania. Besides, the prediction results suggested that maternal mortality is likely to decrease in future because the survival cases are predicted more with little evidence of death cases. The study underscores the complexity of maternal mortality and encourages the development of targeted interventions and predictive models tailored to the Tanzanian context. Also, the study recommended that cautions should be taken when suggesting the machine learning predictive models to avoid overfitting.

Assessment of Information Security Strategies in Safeguarding Public Assets in Tanzania: A Case of Mpanda Municipal Council

Ramadhan Hassanand Samwel Nyamanga

This study has assessed information system security implemented in safeguarding public assets in Mpanda Municipal Council, Tanzania. The study was theoretically guided by the Theory of Information security. Study population was 1294 and sample size was 150. The study used the descriptive research design and the concurrent mixed method approach. Systematic simple random sampling was used to obtain respondents who provided quantitative data. Purposive sampling was used to obtain management officers who provided qualitative data. The semi-structured questionnaire was used to collect the quantitative data, and interview guide was used to collect the qualitative data. Quantitative data was analysed by using descriptive statistics. Thematic analysis was engaged to analyse qualitative data. The study established and concluded that user identity management, securing remote access, data centre security measures, cloud security measures, advanced threat defenses, and anti-virus and malware software played crucial roles in safeguarding public assets. The study recommends that LGAs and Government Institutions should enhance employee's awareness on information security strategies; conduct regular security assessments, vulnerability scanning, and penetration testing to identify and address potential weaknesses in their information security infrastructure.

Key Words: Information security, Information security strategy, public assets

Benefits of adopting cloud computing on public service delivery, a case of ministry of internal affairs (one stop center in Dar es Salaam)

Robert Augustine King`waga and Theophil Assey

Cloud computing can improve operational efficiency, access, and service quality in public services. A thorough analysis of the pros and cons of cloud computing in the Ministry of Internal Affairs, notably at the Dar es Salaam 'One Stop Centre', is needed. This study examines the pros of cloud computing in a public service scenario. The research offers insights and suggestions for improving Ministry service delivery, maybe inspiring other Tanzanian government agencies. Cross-sectional research is used to identify correlations and patterns in the study. The Tanzanian Ministry of Internal Affairs conducted the research. The research focused on Tanzanian Ministry of Internal Affairs employees. This mostly applies to cloud computing service implementers. Research used normal random sampling. Random sampling is a method for selecting a sample from a bigger population where every member has an equal chance of getting selected. This sampling approach is used in research and statistical analysis to improve sample representativeness. Thus, bias is reduced and findings are more generalizable. Thus, 207 people were studied. Respondents were given home survey questionnaires. A questionnaire had closed-ended questions. It is established that the incorporation of cloud computing into the provision of public services has resulted in substantial advantages for governmental entities. The list encompasses a range of benefits, such as reduced expenses, heightened availability, expanded provision of services, flexibility in response to changing needs, strengthened protection of data, and effective facilitation of remote work despite the challenges in security. Cloud computing employ robust encryption methods to protect data both in transit and at rest. This ensures that even if unauthorized access occurs, the data remains unintelligible without the encryption keys. Cloud computing has demonstrated its efficacy as a valuable instrument in the process of modernizing the supply of public services, thereby aligning with the government's dedication to furnishing effective and easily available services to the general populace. The ongoing process of digital transformation is anticipated to create further prospects for innovation and enhancement in the realm of public service provision, particularly through the utilisation of cloud technology.

Keywords: cloud computing, public service delivery, collaboration, data security, efficiency.

Assessment on how computer security awareness impacts employee behaviour on data security: a case of workers compensation fund

Samwel Nzunda and Semlambo Godfrey

With increasing concerns over data security, employee awareness has become a focal point in combating breaches. This paper investigates the relationship between computer security awareness and employee behaviour regarding data security within the context of the Workers Compensation Fund. Online questionnaires were used as the primary tool for collecting data. These were disseminated via Google, allowing a wide reach within the target population. A sample of 112 was used from a population of 157 respondents. Inferential analysis was employed to examine the collected data, utilising statistical techniques to conclude the sample data. The findings were then organised and presented through tables and charts to provide clear and accessible insights. Most respondents acknowledged that their awareness of security measures influences behaviour in handling information security. A positive correlation was discovered between employee behaviour in data security and their level of awareness. The findings reveal that an employee's knowledge of internet security plays a crucial role in an organisation's security posture. A thorough understanding of internet security threats increases the tendency to recognise and report potential issues. This study emphasises the importance of educating employees on security threats as a significant aspect of organisational safety.

Keywords: Data Security Awareness, Data Security, E-Government, Employee, Behaviour.

Assessment on the Key Factors Affecting TAUSI Portal Usage on Local Government Authority Revenue Enhancement

Shani Gotham Mhagama and Theophil Assey

The study presents an assessment on the Key Factors Affecting TAUSI Portal Usage on Local Government Authority Revenue Enhancement, a digital platform aimed at enhancing revenue for local government authorities. The study explored the factors that contribute to the successful adoption and utilization of the TAUSI Portal, and assessed their influence in revenue enhancement. The researcher used quantitative research approach. Through

purposive and simple random sampling, four (4) LGAs out of eight in Ruvuma region were obtained. Then a stratified random sampling was used to obtain a sample of 148 business holders, Council Officers and other Council Customers in the region. Data were collected through questionnaires and interview, and the results were analysed using the statistical package for social science (SPSS) program version 25. To determine quality of data, the reliability of items within factor of Perceived Ease of Use (PEOU) and LGA Revenue Enhancement (RE) were tested, using Cronbach's alpha coefficient. The test result indicated that Cronbach's alpha coefficient was 0.723 implying that the reliability coefficient of the items was very good. R square, showed 43.6% of the variation in dependent variable due to independent variable. Also the analysis of R value (0.7) showed positively and substantially correlation between predictor and dependent variable (PEOU and RE). This value implies positive and substantial correlation between predictor variables PEOU and RE. As such Perceived Ease of use of TAUSI Portal significantly influenced the Revenue Enhancement.

Keywords: TAUSI Portal, Local Government Authority, Revenue Enhancement, Technological Acceptance, Perceived Ease of Use, Perceived Usefulness, Perceived Trust.

Key challenges and potential vulnerabilities related to data privacy and protection in e-government operations, a case of karanga prison

Sifaeli G. Nanyaro and Theophil Assey

Implementation of e-government initiatives gives rise to significant apprehensions over the safeguarding and confidentiality of data, namely in the case of a particular establishment, Karanga Prison. Given the growing dependence of the prison system on information and communication technologies, it is imperative to examine the primary obstacles and potential susceptibilities associated with the safeguarding and preservation of data privacy. The primary objective of this study is to investigate the management of data privacy and security in the e-government operations of Karanga Prison. The research seeks to examine the potential dangers that may arise in this context and evaluate the effectiveness of current measures in place to protect sensitive information. The primary focus of this study is to gain a full understanding of the complexities of data privacy and protection inside a specific institution working within the e-government framework of Tanzania. The present study employed an exploratory research design. The study area for this research was at Karanga Prison in Kilimanjaro. The target population of the research included employees at Karanga

Prison, Tanzania. The convenience sampling strategy was employed to gather data from the target population for this investigation. Upon the respondents' completion of the online surveys and subsequent gathering of their data, the acquired data was subjected to analysis using the SPSS software. The research indicates that poor data encryption hinders e-Government operations. This vulnerability puts sensitive citizen data at risk. Insufficient encryption in e-Government systems exposes communicated and stored data to interception and unauthorized access, endangering citizen privacy. The solution to this problem is crucial to data protection. The findings suggest government agencies' third-party suppliers and service providers may have shortcomings. These entities may not follow data protection standards, putting citizen data at risk when transmitted or processed by other parties. Government agencies must develop strict vendor management and data protection processes to counter this problem. The analysis shows that government organizations are unprepared to handle data breaches.

Keywords: data privacy, data protection, vulnerabilities, e-government, e-government operations

The Role of Information and Communication Technology (ICT) in Provision of Water Supply and Sanitation Services in Tanzania. A Case of Bunda Urban Water Supply and Sanitation Authority

Stella Sweya and Madam. Happyness Lenard

The study explores the role of ICT in Bunda, Tanzania's water supply and sanitation services, identifying challenges and proposing strategies for improved integration. The research utilized a closed-ended questionnaire methodology, defining objectives and designing a structured questionnaire with clear, closed-ended questions for demographic information. A survey of 300 Water Sanitation and Service Provision experts in Bunda, Tanzania, collected demographic data including gender, age, education, experience, and primary expertise areas. The findings regarding the role of ICT in water supply and sanitation services in Bunda revealed that a majority of respondents agreed that ICT can significantly improve operational efficiency, data collection, communication, emergency response, revenue collection, customer service, asset management, water quality, and resource planning. The study's findings highlight the complex challenges faced by the region in implementing ICT, including unreliable internet connectivity, insufficient infrastructure, funding constraints,

technical skills, resistance to change, and data privacy concerns. Based on the findings, strategies for enhancing ICT integration include investing in infrastructure, fostering partnerships, ensuring data privacy, developing standardized protocols, implementing user-friendly platforms, exploring innovative financing models, and prioritizing renewable energy sources. Therefore, this research explores the role, challenges, and strategies of enhancing ICT integration in Bunda, Tanzania's water utility services, aiming to improve service delivery, sustainability, and resilience.

Keywords: Information and Communication Technology (ICT), Water Supply, Sanitation Services, Bunda

Impact of Enterprise Resource Planning (ERP) System on Efficiency and Productivity of the manufacturing operations In Tanzania: A Case of Wilmar Tanzania Ltd

Suzana Burton Patrick and Thadei Kiwango

The contribution of enterprise resource planning (ERP) system to business growth is yet to be quantified and proven due to challenges and failure of success factors during and after ERP implementation, hence there is a call to find out the impact of ERP systems in relations to business growth. The study assessed the impact of ERP systems in promoting business growth for manufacturing industries in Tanzania, specifically the study assessed the impact of enterprise resource planning (ERP) systems on efficiency and productivity of manufacturing operations in Tanzania. The predictors were tested towards efficiency and productivity as the dependent variable. Positivism philosophy was employed since the Mixed method design used complemented with pragmatism philosophy. Primary data were used to foster information gathering process from the sample of 45 respondents with 38 system users and the key informants the remained number. The Study employed stratified systematic random sampling, where respondents were divided into three strata of; Functional Managers, Functional users, and system experts, to allow fair representation. Data were collected using interviews and questionnaires, and the collected facts using questionnaires were computed in SPSS software version 23.0 to obtain relevant statistics to present the results. Descriptive statistics specifically frequency graphs and percentages were used to describe the results. The study employed quantitative approach because on causal relationship testing employed in the process of knowledge generation, therefore, multiple regression analysis was used to describe the relationship between the predictors and the dependent variable. Findings revealed that, ERP systems towards efficiency and productivity is essential and constitute

positive impact regarding to efficiency and productivity of manufacturing operations respectively. The implication of the results is that manufacturing operations in Tanzania through enterprise resource planning (ERP) system strongly influence operational efficiency, leading to increase in sales revenues as an indicator of business growth.

Keywords: ERP system, efficiency and productivity, manufacturing operations, business growth

Exploring determinants of information security in public organizations: a case study of Po-PSMGG Dodoma Region

Zalika Hussein and Thephil Assey and Adam A. Semlambo

This comprehensive study investigates the information security landscape within the context of PO-PSMGG, focusing on key dimensions such as training effectiveness, awareness programs, response to security incidents, and the implementation of technological safeguards. Through a mixed-methods approach, including surveys and interviews, responses from distinct groups—Management, Technical Staff, and Ordinary Users—reveal nuanced insights. Notably, findings underscore positive perceptions of training programs, with tangible benefits identified across all groups, affirming the alignment of employee understanding with strategic organizational goals. Additionally, the study delves into the awareness and responsiveness of users towards phishing, malware attacks, and human errors, shedding light on areas of strength and potential improvement. Furthermore, the evaluation of technological safeguards reveals a high degree of implementation, with detailed responses from Technical Staff providing valuable insights into the status of firewalls, intrusion detection systems, antivirus software, encryption tools, and secured networks. The study concludes with robust recommendations, emphasizing the need for continuous improvement in security awareness, incident response, and technological safeguards to bolster the overall information security posture of PO-PSMGG.

Keywords: Information Security Policies, Incident Response, Employee Training, Phishing and Malware Preparedness, President's Office Public Service Management and Good Governance (PO-PSMGG)

Factors Facilitating the Rapid Increase of Mobile Money Cybercrime A Case Study of Moshi District

Jackson Joseph

The rise in mobile money cybercrime in Moshi District requires a dedicated investigation. Despite widespread use of mobile money services, the factors driving cybercrime in the region have not been well examined. This study examines the variables and situations in Moshi District that cause mobile money cybercrime (Nguyen, 2023). The topic includes socioeconomic variables, digital literacy, local cybersecurity procedures, cultural and sociological impacts, and hackers' specialist methods in this area. Understanding district-specific factors contributing to mobile money cybercrime is essential for developing customised solutions, raising community awareness, and guiding local law enforcement. The Yamane formula (2006) determined a sample size of 100 for this study. Responses were collected via home surveys. Closed-ended questionnaires were used. Participants have to give informed consent and meet mobile payment eligibility conditions to participate in the study. This study needed a questionnaire due to time and respondent constraints. SPSS software was used for inferential analysis, which simplified data presentation for the intended audience. The collected raw data was entered into SPSS. The findings suggest a holistic strategy to Moshi District's rapid mobile money cybercrime increase. Work should include user education, regulatory reform, socio-economic development, and novel cybersecurity. We must recognise these variables' interconnection to combat mobile money cybercrime and protect the district's citizens' finances. These data illuminate the causes behind Moshi District's mobile money cybercrime rise. User education, cybersecurity, regulatory changes, poverty reduction, and financial literacy will be needed to address these concerns. To improve mobile money security for district people, specific measures must meet the district's socio-economic and cultural variables.

Keywords: mobile money, mobile money cybercrime, data security measures, user awareness.

Assessing the impact of people on information security and public service delivery; a case of Tunduma Migration Services

Edwin Boniphace Shelela and Mishael Emanuel

This study analyzes human variables in information security and their impact on public services. Tunduma Migration Services (TMS) is a government agency that manages immigration and migration procedures. In light of rising cyber risks and data breaches, TMS (Transportation Management Systems) must design and maintain robust information security measures. Human factors—staff awareness, behavior, and adherence—often affect information security procedures. This study collected data at one time using a cross-sectional design. Employee surveys from Tunduma Migration Services (TMS) are the main data collection method. A representative sample will be selected from TMS departments using stratified random sampling. The sample included 192 TMS front-line, manager, and IT employees. Four weeks were spent collecting data to ensure enough responses. Online and print surveys were sent to chosen TMS employees by department and job. Participants were informed of the study's purpose, confidentiality, and withdrawal rights. Data from completed surveys will be analyzed in a secure database. Inferential statistics, particularly correlation analysis, examined linkages and predicted results. Analyses were done with SPSS. The results of this research show a strong relationship between variables related to Tunduma Migration Services' workforce, information security, and public service performance. It is stressed how crucial it is for employees to comprehend security procedures and follow them in order to lower security incidents and improve service quality. Moreover, the findings highlight the importance of public trust and effective communication in shaping people's perceptions of the caliber of services and the organization's commitment to safeguarding private information. The research findings presented by Tunduma Migration Services shed light on the complex interplay between individuals, information security, and the provision of public services. These findings underscore the crucial importance of employees in protecting confidential information and facilitating the effective delivery of public services.

Keywords: people, information security, public service delivery, data security and migration services

An Assessment of Cyber Security Awareness in Tanzania Microfinance: A Case Study of Vision Fund Tanzania Microfinance Bank Limited (VFT)

Joshua Mosha

Cybersecurity is of paramount importance in microfinance, as it plays a pivotal role in safeguarding sensitive financial data, ensuring the integrity of digital transactions, and maintaining the trust of clients and stakeholders. With the increasing digitalization of financial services, microfinance institutions are becoming attractive targets for cybercriminals. However, research on the cybersecurity awareness of employees in microfinance is lacking. The study's goal was to investigate cybersecurity and best practices, using Vision Fund Microfinance Bank Ltd (VFT) as a case study. The study population consisted of 420 employees at VFT, and a sample size of 201 participants was used for this study. The study employed a mixed-method approach, combining quantitative and qualitative methods for data analysis. Descriptive analysis was used to analyze data through means, standard deviations, frequencies, and percentages. The data analysis process was supported by SPSS.

Keywords: Employee cybersecurity training, risk management, and policy development are key focuses of the study, highlighting the need for improved knowledge and training programs at Vision Fund Microfinance Bank

Assessment of effectiveness of data security interventions among four operating Firms in Arusha city, Tanzania.

Maximillian Mgina and Kaanael Mbise

In the realm of data security within four operating firms in Arusha City, Tanzania, this study employed an Information Security Management Theory (ISMS) framework to assess the effectiveness of interventions in the identification, compliance, and prevention of cyber-attacks and data breaches. Through a cross-sectional survey research design, the study focused on assessing the effectiveness of various interventions. The research reveals a nuanced landscape, emphasizing the need for context-specific strategies. Demographic profiles display varied associations, highlighting the importance of tailored approaches. Effectiveness of measures is notably associated with practical interventions, showcasing positive trends in structured data security policies. Key findings underscore the significance

of data encryption methods, the limited impact of access controls and risk assessments, and the pivotal role of data backups. Challenges faced by four operating firms in implementing effective data security interventions were explored. While clear correlations between challenges and the perceived effectiveness of measures were lacking, insights emerge. Resource constraints and the critical role of employee training and awareness were emphasized, highlighting the human factor and the necessity of cultivating a security-conscious culture. Additionally, technological complexity and regulatory compliance pose hurdles, necessitating adaptive security measures. The study concluded with recommendations for fortifying data security. A comprehensive approach is advocated, encompassing dynamic educational programs, continuous research, and an understanding of organizational culture's impact. Industry-specific studies are deemed crucial, alongside strengthening data security teams, aligning policies with emerging threats, and acknowledging the interplay between employee satisfaction and security effectiveness. Encouraging industry collaboration, adapting holistic data security strategies, fostering a culture of compliance, and promoting interdisciplinary collaboration are proposed as key measures.

Keywords: Data Security, Tour Operating Firms, Cyber-attacks, Information Security Management Theory (ISMS), Data Breaches

Evaluating the Impact of Operational Transparency on Revenue Collection Efficiency: A Case Study of MUWSA Billing Process

Augusto P. Shoo

This study examines the quantitative aspects of operational transparency and its impact on revenue collection efficiency at the Moshi Urban Water Supply and Sanitation Authority (MUWSA). Employing regression analysis, it explores the influence of transparent billing practices, especially regular notifications, on customer payment behaviours. The results demonstrate that while transparency in billing increases customer responsiveness, it does not necessarily lead to higher revenue collection efficiency. A critical finding is the importance of information reliability in billing data. The study reveals that resolving billing discrepancies effectively through reliable information is key to enhancing the effectiveness of transparency measures in revenue collection. This underscores the need for MUWSA to adopt communication strategies that are not only transparent but also clear and easily

comprehensible to customers. In highlighting the significance of accuracy and reliability in billing information, the study offers strategic insights for improving MUWSA's revenue collection processes and contributes to the broader field of utility management.

Keywords: Operational Transparency, Revenue Collection Efficiency, Utility Management, Communication Strategies, Information Reliability.

Assessing the Impact of Data-Driven Predictive Models on Minimizing Students' Dropout Rates in Public High Learning Institutions: A Case Study of IAA.

Masolwa Mapinda Zacharia and Mishael Abduel

This study assesses the impact of data-driven predictive models in minimizing student dropout rates within the public higher learning context of the Institute of Accountancy Arusha (IAA). Employing a case study design with both quantitative and qualitative methods, the research collected data from various sources, including secondary data from IAA Examination and accounting offices, and questionnaire to students. The analysis utilized descriptive methods for quantitative data and content analysis for qualitative insights. The sample of 385 students, randomly selected from the total population of 11,566 at IAA Arusha Campus, demonstrated that the developed predictive model successfully identifies students at risk of dropout. The findings suggest that implementing data-driven predictive models could significantly reduce dropout rates through early interventions. The study recommends the adoption of such models in higher learning institutions to identify and support at-risk students. Additionally, it encourages future research to explore dropout factors in diverse institutional contexts, as findings from IAA may not be universally applicable.

Keywords: Student Dropout, Data-Driven Predictive Model, Machine Learning, Neural Network Model, SPSS Modeller.

Enhancing information security compliance in Public Institutions in Tanzania: a case study of Tanesco Dar Es Salaam zone office

Jerry Joseph Anyelwisye & Frank Sengati

The main objective of this cross sectional study was to examine the factors for enhancing information security compliance in Tanzanian public institutions using the case of

TANESCO Dar Es Salaam Zone Office. Simple random and purposive sampling techniques were used to obtain a sample of 86 respondents. Data was gathered questionnaire, in-depth interviews, and documents review while descriptive analysis was carried out in SPSS v21. The results pointed out that the majority of the respondents (over 81.6%) said the efforts done by the TANESCO organization to ensure information systems security compliance was the monetary support. This implies that, the allocation of funds has a direct influence on the implementation of information systems security compliance. Similarly, Aghaunor & Bukky (2022) in their study in Nigerian commercial banks revealed that financial support in information system development is the key factors influencing information security risks management. For the side of human factors, the study found that over 78.9% of the staff said that the insufficient of information system security policies and legal framework normally affects them to comply with information security compliance. These results are similar with those of Alhogail, Mirza, and Bakry (2015) who asserted that many organizations adopt or develop IS security policies, but these policies failed to provide reliable security as they put into practice rather than only remain in documents. Similarly, Semlambo, Mkude, and Lubua (2021) opined that the management fails to enforce policies on users and to provide them with appropriate knowledge and regular training to equip them with dependable tools and knowledge about the organization's information security. For the technical factors influencing information system security compliance, 42.4% of the respondents were partially aware on the implementation of information system security compliance. This implies that staff within the organization they don't know the significant of complying with information security policies. Semlambo, Mkude, and Lubua (2021) argued that among factors affecting the implementation of security measures in designed information systems in Africa include a lack of information security skills, an uncontrolled level of trust and carelessness. However, the study's findings have revealed several issues that need to be considered by TANESCO management, the government, and even staff members. The findings issues that ICT policy is not well known by majority of employees at TANESCO and employee capabilities in information systems knowledge. Therefore, the future study might be looking on the Influence of government policy on adoption and use of information systems security compliance. Top of for

Key Words: Information systems, ICT, Security compliance, Public Sector.

The relationship between technical infrastructures of electronic record information systems and service delivery outcomes in public hospitals

Edinaa Eustance and Theophil Assey

The use of Electronic Record Information Systems (ERIS) in public hospitals has become increasingly popular as a means of improving healthcare service delivery. The aim of this study is to analyze the relationship between technical infrastructures of ERIS and service delivery outcomes in public hospitals. The research design for this study is a descriptive design, and the research approach used is qualitative and quantitative methods. Tools used in analyzing quantitative data are Statistical Package for Social Sciences (SPSS) and Microsoft excel program. The population for this study involved 450 employees such as healthcare professionals who interact with the electronic record information system at Mount Meru Hospital with 212 sample size, and sampling techniques were convenience sampling and simple random sampling techniques. The primary data collection method is self-administered questionnaires. Analysis techniques include content analysis, descriptive statistics, frequency distributions, and regression analysis to understand the relationship between technical infrastructures of ERIS and service delivery outcomes in public hospitals. The findings revealed that there is a strong relationship between technical infrastructures of ERIS in service delivery outcome in public hospitals. The study concludes that a strong ERIS technical infrastructure is crucial for positive service outcomes, recommending investments, regular maintenance, upgrades, and backup systems to ensure reliability and accessibility, particularly during emergencies.

Keywords: Technical infrastructures, electronic record information systems, service delivery outcomes

Sustainability of the Digital Transformations Adopted by the Tanzania Higher Learning Institutions after the Covid-19 Pandemic

Levina Myovela and Allan Mosha

The study assessed the sustainability of the digital transformations adopted by the Tanzania higher learning institutions after the Covid-19 Pandemic; perspective from Institute of Accountancy Arusha. The study adopted the descriptive survey research design. The reason for choosing the research design was the fact that the researcher needed to collect numerical

data from respondents. Moreover, the design was suitable as it helped the researcher to collect, analyze and interpret the research findings in systematic approach. Moreover, the study employed quantitative research approach in order to gather numerical data from respondents. The target population for the study included master's students and academic staff. The study used stratified random sampling technique to select respondents. The sample was obtained using Yaro Yamane, 1995 Statistical formula $n = \frac{N}{1 + 200(0.0025)}$, $N = 133.33$, $N = 133$. Data were collected through structured questionnaires and analyzed through descriptive statistics such as mean and standard deviation. The study found that digital transformations adopted by the Tanzania higher learning institutions after the Covid-19 Pandemic were sustainable. The sustainability was evidenced by the availability of studio, online content, guidelines and being adopted by NACTVET. The study further revealed that respondents were not aware on who established the digital transformations adopted by the Tanzania higher learning institutions. Moreover, they were not sure of the ICT competence among users. The study recommends that higher learning institutions should put more emphasis on capacitating facilitators and learners ICT competence on digital transformations adopted by the Tanzania higher learning institutions thus assuring its sustainability. Moreover, study recommends that the Tanzania higher learning institutions should have clear policy on the digital transformations used in teaching and learning.

Key Words: Sustainability, Digital Transformations, Covid-19 Pandemic

Performance Evaluation of Machine Learning Classification Models For Predicting Maternal Mortality in Tanzania

Radislaus Majigo

The study performed performance evaluation of machine learning classification models to predict maternal mortality in Tanzania. The classification models evaluated were the Logistic regression, Support Vector Machine (SVM), Artificial Neural Network (ANN) and Random Forest (RFF). The study employed a retrospective cross-sectional research design and collected secondary binary data covering a period of three years from 2020 to 2022 whereby a total of 76,227 women were recorded in The Health Information Management System (HIMS), so the sample of the study. The performance evaluation results revealed that logistic regression, Artificial Neural Network, and Support Vector Machine predicted maternal outcome accurately by 99.36%, 93.36%, and 99.96% respectively while, Random Forest predicted accurately by 100.0%. In that regard, the study suggested the random forest model

as the best model for predicting maternal outcome in Tanzania. Besides, the prediction results suggested that maternal mortality is likely to decrease in future because the survival cases are predicted more with little evidence of death cases. The study underscores the complexity of maternal mortality and encourages the development of targeted interventions and predictive models tailored to the Tanzanian context. Also, the study recommended that cautions should be taken when suggesting the machine learning predictive models to avoid over fitting.

Assessment of Factors Affecting Financial Management Information System in Local Government Revenue Collection a Case Study of Njombe District Council.

Peter Edson and Happiness L. Mkumbo

In Tanzania, the Financial Management Information System has been in use since 1998 and it is one of the first systems of its kind in East Africa. It has proven to be very beneficial as a central payment, accounting, and reporting system, and it has been pushed out to all Ministries, Departments, and Agencies (MDAs), sub-treasuries, and Regional administrations, as well as numerous Local Government Authorities around the country. The study assessed factors affecting financial management information system in local Government revenue collection. The findings revealed financial management information system plays a vital role in revenue collection at Njombe District Council. But, there were various challenges associated with implementation of the system which were poor infrastructure and working facilities, poor financial records, insufficient resources include skilled and professionalism, little acceptance of the officers to new introduced system and use the same revenue sources to increase fines, charges and fees to tax payers with little identification and mobilization of new sources. To solve the problem of poor revenue collection, the Central Government has to improve the performance of the financial management information system through infrastructure and working facilities. The Local Government; the Councillors, WEO's and VEO's to create awareness and engage the community in identification and mobilization of revenue sources.

Key words: Financial management information system, revenue.

The Effectiveness of Information System Audit on Financial Performance of City Councils: A Case Study of Arusha City Council

Benson Mkoba

This study explores into the effectiveness of Information System Audits (ISA) on the financial performance of Arusha City Council in Tanzania, recognizing the critical role ISA plays in public sector entities. The research, adopted a mixed approach, involves surveys with 106 respondents within the municipal government context. Findings reveal a positive correlation between ISA practices and financial performance, emphasizing internal controls, alignment with organizational goals, and data accuracy. However, neutral perceptions of ISA's influence on overall financial stability prompt recommendations for reassessment, awareness promotion, and optimization of internal controls. Tailored risk management and communication strategies are advised to address varied perceptions. The study underscores the importance of enhancing ISA practices, incorporating technological advancements and compliance measures, aligned with the specific challenges faced by municipal governments in Tanzania for their financial performance..

Key Words: Information System Audits, Financial Performance, City councils

Assessing the impact of e-services on the delivery of quality immigration services in Kilimanjaro region.

Joseph Gregory and Edison Lubua

This study assessed the impact of e-services on the delivery of quality immigration services in Kilimanjaro region, a region known for its diverse demographic of immigrants. The study employed mixed-methods approach, combining quantitative surveys and qualitative interviews to collect data from Tanzanians and foreigners who have interacted with the immigration e-services in Kilimanjaro region. A sample size of 246 respondent were selected from population of 30753 people who uses immigration e-services. This include 60 immigration officers 86 normal user and 100 foreigners. The study employed questionnaires, Key Informants interviews and documentary reviews for data collection. The study found an improvement on quality of services on immigration department due to introduction of e services. Factor like efficiency on services, effectiveness on services provision and effectiveness on cost was observed. The improve was based on the ease of use the system, application of e service any were, reduction of waiting time and reduction of cost for services

applicants. Other observations were reduction of travel and waiting time, introduction of more efficient payment methods, improve transparency and openness of government's operation, rise on governance and reduce systemic corruption, and eventually lead to the transformation of governance. Challenges like submission of incomplete applications, power cut-offs, network problems and language challenges for some applicants, lack of support desk and applicant knowledge on e-services. Here multiple language on online web page, support desk and eliminating of paper works base on regulation was recommended.

Key words: Immigration, e-services, quality, quality of services

An investigation on the effectiveness of e-learning on students' skills acquisition among higher learning institutions: a case study of institute of accountancy Arusha.

Baraka Alex and Allan Msolla

The study examined the effectiveness of e-learning on students' skills acquisition among higher learning institutions: a case study of Institute Of Accountancy Arusha. The study had three objectives namely; to examine the e-learning practices at the Institute of accountancy Arusha, to determine the usefulness of e-learning on students' skills acquisition the Institute of accountancy Arusha and to suggest best strategies that can be used promote students' skills acquisition through e-learning at the Institute of accountancy Arusha. The study adopted a mixed research approach whereby it utilized both quantitative as well as qualitative techniques. Stratified random sampling techniques were used in this study. Data were collected using questionnaires and interview and analyzed through descriptive statistics. Findings found that e-learning at the Institute of accountancy Arusha was practiced in various ways that facilitated teaching and learning and that the practices of e-learning was useful for both learners and lecturers. It was further found that e-learning was effective however; despite of the usefulness of e-learning, the issue of application of practical skills remains to be a challenge. This is because through e-learning, it is difficult to practice practical sessions. Moreover, The study further revealed that that when there is use of interactive mode, linking theory and practice, provision of a meaningful experience, allowing learners to explore, setting and communicating clear goals, allowing students to demonstrate skills and encouraging student centered approach can be used to promote students' skills acquisition through e-learning at the Institute of accountancy Arusha. The study recommends that for students to acquire the desired skills, the Institute of accountancy Arusha should use both e-

learning and face to face learning. This will help students to conduct practical session during the face to face sessions. The study further recommends that interactive mode, linking theory and practice, provision of a meaningful experience, allowing learners to explore, setting and communicating clear goals, allowing students to demonstrate skills and encouraging student centered approach should be highly observed for students to master the skills.

Key Words: Institute of Accountancy Arusha (IAA). Higher learning Institution (HLI)

Assessing factors influencing information communication technology adoption and usage by small and medium sized enterprises: the case of Arusha region

David Magafu Joackimu

The purpose of this study was to gain a deeper understanding of the factors that influence the adoption and use of Information Communication Technology (ICT) systems and applications, by Small and Medium sized Companies (SMEs) in Tanzania. The researcher used descriptive survey to ensure that the research problem was well constructed and understood. The study employed the use of questionnaires to extract pertinent data from participants of the study. The innovation diffusion theory argues that a user makes the decision to adopt a technology as a result of the information they have received about the technology (Babbie and Benaquisto, 2019). According to Rogers (2022), IDT is made up of five characteristics. The study found that SMEs were more likely to adopt ICT solutions when they could easily quantify their benefits to their companies' bottom line, improve productivity and lower their operation cost. The Perceived ease of use of technology was found to have a positive influence on its adoption and use by SMEs based in Arusha. The study found that Perceived cost of deploying ICT had a negative effect on ICT adoption and use by SMEs. From the study indicates that Tanzanian SMEs don't see the significance of their employees ICT knowledge and skills when they are considering adoption of ICT systems and applications. The study concludes that adoption of ICT by SMEs is influenced by perceived usefulness of ICT systems and applications. The study concluded that Employee ICT knowledge and skill of ICT systems and applications had no influence on adoption of ICT by SMEs, thereby finding that there was no significant relationship between employee knowledge and skills of ICT and adoption of ICT by the SMEs. The study recommends the management of the companies that sell ICT systems and applications and offer support for these systems clearly show the impact of these system on productivity, profitability, improved business processes

and communication. Also, the companies should clearly demonstrate that the systems are reliable, accessible, available and user friendly. The study also recommends the management of SMEs support ICT initiatives within their companies, this enhances the adoption of ICT by their companies

Keywords: Adoption of ICT, small and medium sized enterprises, Information System,

Investigating human factors compromising the security of information systems in the public sector in Tanzania: a case of TANAPA headquarters

Denice Felix

The internet's evolution since 1973 and rapid technological advances have created a transformative era in social computing, offering vast opportunities globally. However, this progress has made individuals and organizations vulnerable to cybercrime and data breaches. Despite the technical measures in place that have proven a remarkable success in the protection of the information systems, human factors are becoming the weak point for cybercrimes. This study investigated human factors compromising information system security in Tanzania's Public Sector, focusing on Tanzania National Parks HQ. The study aimed to find out the human errors, personality traits, and motivational factors leading to security breaches of information systems. The research employed a mixed-method approach with 154 targeted respondents, utilising structured questionnaires and interviews for data collection. Analysis was done using SPSS 26 for quantitative aspects, the descriptive statistics on frequencies and percentiles, presenting descriptive results, while qualitative data underwent manual interpretive techniques and content analysis. The results show that human errors such as forgetting printouts, failing to log off computers, and losing sensitive information are significant occurrences. Personal traits like sharing login credentials and falling victim to social engineering pose a considerable security risk. Motivational and reward issues that pose security breaches include financial gain, personal grievances, Personal satisfaction, Recognition, and personal conflicts. It is recommended that public institutions implement comprehensive training and awareness programs, enforce security policies and practices, promote responsible social media use, enforce secure document disposal procedures, foster a security-conscious culture, and implement multi-factor authentication (MFA) and access controls.

Keywords: Human Factors, Human Errors, personality traits, Motivational issues, Rewards issues, Cybercrime

Effectiveness of health mobile applications in child health care: A Case Study of Moshi municipality

Kelvin Kazaura Christophen and Theophil Assey

The study investigated the effectiveness of health mobile applications in child healthcare, focusing on Moshi municipality. It explored community awareness of health mobile applications, their usage in child healthcare, and the socio-economic and technological factors influencing their adoption. Using a cross-sectional design and a mixed research approach, a sample of 384 respondents was selected through simple random sampling. Data were collected through questionnaires and structured interviews, analysed using SPSS, and presented as percentages, means, frequencies, and standard deviations. Results indicated awareness and adoption of health mobile applications for child healthcare, with respondents expressing a strong preference for mobile health services. The study concluded that addressing barriers like cost and security concerns is crucial, emphasizing the need for education on the significance of adopting these applications, provided security features are observed.

Key Words: Effectiveness, Awareness, Health mobile applications, Child health care, mHealth

Article on “cybersecurity efficacy on internet banking applications in tanzania’s domestic commercial banks”

Salum Ahmed Nyamwese and Kaanaeli Mbise

This paper is about cybersecurity efficacy on Internet banking applications in Tanzania's Domestic Commercial banks. This novel purpose was attained through assessing existing security controls, identifying the existing security risks, and proposing a security control model for Internet banking applications in Tanzania's domestic banks. The study adopted a cross sectional research design whereby primary data to complement security assessment was collected via survey questionnaires from 25 staff selected from 5 domestic commercial banks

which have internet banking application. The collected data was analysed using STATA statistical package to establish variation and the Nessus Pentest tool for security assessment while, the model was developed using a smart PLS tool. The found that internet banking application have low risk as the score ranges between very good (90%-100%) and good (85% - 89%) though in two banks, the overall risks was medium. However, despite having medium risk in two banks, but the most of the files revealed with low risk levels. Lastly, the developed mode was found significant and appropriate regarding the scope of the study. The study recommends ICT security officers to perform vulnerability assessment as a routine work because cybersecurity is changing everyday so the threats. Also, the banking management should allow penetration testing from the externals to assess whether the identified vulnerability have a significant effect to the internet banking application system. Lastly, it is advised for the bank management to perform security awareness to all staff and the customers because most of the vulnerability originates from the internal and external users

The Influence of Human Behaviours on Information Systems Security Controls at NSSF Arusha Region in Tanzania

Abdi Mohamed and Frank Sengati

Abstract study carried out at NSSF Arusha Region in Tanzania. The focus of this paper is on information system users' awareness on information security controls and the extent to which the human behaviours as driven from Technology Adoption Model (TAM), Theory of Planned Behaviour (TPB) and Protection Motivation Theory (PMT), influence information systems security controls. The study adopted a case study design and collected data through survey questionnaires from 225 respondents sampled randomly from NSSF in Arusha. Generally, the findings revealed information system users have a positive perception on awareness of information security controls within NSSF, reflecting a high level of belief in the importance of adhering to security practices. Besides, it was revealed that there is a negative perception on the need for improved verification practices before clicking links and occasional unauthorized software installations. Also, the study revealed that perceived usefulness, attitude, and response efficacy have significant positive effect on information security controls while, the effect of self-efficacy revealed significant but negative. Additionally, perceived behaviour control, subjective norms and perceived threats were not significant. The study draws recommendations to the NSSF and public sector organisation to

invest in information security awareness to all staff and external customers because threats are originated from users of the systems. Also, the users are recommended on actively seeking information about the benefits of information security technologies. Lastly, NSSF is recommended not to disregard the insignificant factors but to take caution on their perceived effects.

Evaluating the significance of the AAA security framework in establishing ICT security controls within the public sector: A case Study of the Ministry of Finance, Tanzania

Erick Martin Mhina

In the ever-evolving cybersecurity landscape, protecting sensitive information within the public sector has become paramount. This research delves into the critical realm of cyber threats by conducting a case study within the Ministry of Finance, Tanzania, focusing on implementing the Authentication, Authorization, and Accounting (AAA) framework to safeguard against cyberattacks. The overarching goal of this study was to explore how public sector organisations undertake proactive measures to fortify their defences against cybersecurity incidents. The research targeted a comprehensive population comprising Ministry of Finance employees, including ICT unit leaders, cybersecurity experts, and various ICT users. A sample of 264 respondents was thoughtfully selected using purposive, simple, and random sampling techniques. Employing a quantitative approach, the study collected and analysed both primary and secondary data, with primary data sourced from questionnaires and log reviews and secondary data derived from existing research. Analysis was conducted through tools like MS Excel and STATA, followed by the interpretation of the results. The study's findings unveiled vulnerabilities across multiple dimensions, including user awareness, infrastructure resilience, and adherence to established guidelines regarding ICT documents. In light of these discoveries, the research strongly recommends the implementation of robust security controls to fortify information security within the public sector, with a particular emphasis on the AAA framework as a vital protective measure against cybersecurity threats. This research is crucial in enhancing the security posture of public sector entities, which cyber adversaries increasingly target.

Keywords: Cybersecurity, AAA Security Framework, Public Sector, Information Security, Cyber Threats

Assessment of the factors affecting privacy and security of social network users in Tanzania: A case of Ubungo Municipal Council

Erick Charles Mbusibwa, Samwel K. Nyamanga and Adam Aloyce Semlambo

This study investigates the privacy and security factors impacting social network users in Tanzania, focusing on the Ubungo Municipal Council. The research uses a case study approach with qualitative and quantitative methods to assess user awareness, behaviour, and threats. The target population included social network users, police officers, and local leaders at the ward level. A sample size of 130 respondents was used. Questionnaires and structured interviews were used as the data collection instruments. SPSS was employed as the data analysis tool. The results revealed that over half the community engages with multiple social platforms, yet awareness of relevant laws is lacking. While some users take minimal privacy measures, security app adoption is low. Although many recognise theoretical threats, practical safeguards remain limited. The study recommends collaborative efforts between institutions like TCRA and the police force to enhance awareness and provide user training on safe electronic devices and social media usage.

Key Words: Social Media, Privacy, Security, Ubungo Municipal Council

Assessing students' perception of computer studies in government secondary schools in Tanzania: A case study of Arusha district council

David Nyangaka and Pamela Choggo

The research focused on understanding students' perceptions of computer studies, encompassing factors such as attitudes, motivations, gender and knowledge. Tanzania, recognizing the importance of ICT in education, initiated efforts to integrate technology into its secondary schools. However there is a slow integration of ICT in government secondary schools. The study is governed by two theories which are Social Cognitive theory and Self-Determination theory. The research design for the study is a descriptive survey with a mixed approach. The research was conducted in four government secondary schools in Arusha urban which are Mwandet Secondary School, Mringa Secondary School, Mlangarini Secondary School, and Oldadai Secondary School. The findings reveals that noticeable interest among male students than female students in computer studies, primarily age of respondents ranged 10-20, with limited computer access at home. While a generally positive

attitude towards computer studies is observed, a significant gap exists between ICT use for learning and entertainment. However, challenges include low ICT use intensity for learning, insufficient teacher-student interactions, and a lack of parental support. Students' insightful suggestions advocate for hands-on learning, specialized teachers, and collaborative initiatives to improve computer education engagement and effectiveness.

Assessing Effects of Public Perception on Women's Participation in Decision-Making Bodies: A case of selected NGOs in Dar es Salaam

Beatrice Kamugisha and Charles Ngirwa

In this study mixed research approach and convergent parallel research design were employed throughout. The researcher targeted a population of 252 from which a sample size of 155 was obtained by using simple random sampling and purposive sampling techniques. In this study, the researcher collected through questionnaires and in-depth interviews, while secondary data was collected through documentary review. Quantitative data was analyzed using SPSS in which the researcher performed different statistical tests such as descriptive statistics, inferential statistics and multiple regression analysis. The findings show that public perception plays a significant role in influence women's participation in decision – making bodies. It can either facilitates or hinder their progress, public perception often adheres to traditional gender roles and stereotypes, woman may be perceived as being more suitable for nurturing role rather than positions of power and authority. Therefore, it can establish public perception has a multi- faceted impact on women's participating in decision – making bodies. This study recommended that there is a need to provide education and training on gender equality and women rights to raise awareness about the importance of women participation on decision making. This study also recommends on the creation of inclusive and welcoming environment that values diverse perspectives and encourages open dialogues in the organization to allow women participation in giving opinions. this study recommends that despite on the presence of policies and other institutional measures to support gender inclusivity in the decision-making bodies.

Key Words; Women; public perception, NGOs, Participation, Decision- Making Bodies

The challenges of corporate leadership on performance of companies during COVID 19 pandemic in Tanzania

Somoe Omar Wamala and Kelvin Njunwa

The study assessed leadership challenges on performance of companies during COVID 19 pandemic in Tanzania. The study employed exploratory design because knowledge generation was subjectively articulated to address the gap. Primary data were used to facilitate knowledge generation process through the employees of the organizations by means of questionnaires and interviews. The collected results through questionnaires were filled in Excel and generated descriptive statistics used to present the results. Information obtained through interviews were analysed through content analysis which were narratively presented supported with themes. The implication is that the pandemic affected the entities in Tanzania whereas measures were employed to rescue them. The findings of the study indicate that the pandemic subjected the companies to severe challenges which affected the business and well-being of the company including revenue loss, clients depletion, financial decline and others.. The study further recommended that it is essential for the pandemic concerns to be addressed by the organizations especially business entities since they encountered massive setbacks that had implication pertaining to the well-being and performance.

Key Words: Leadership, COVID 19 Pandemic, Performance, and Challenges

The key challenges faced by teachers and students in utilizing ICTs for teaching and learning in secondary schools

Peter E. Mkilamwene

The study evaluated the role of ICT in improving academic performance in Tanzanian secondary schools, with a focus on the Njombe District Council. The study used a cross-sectional survey technique as well as interviews to collect data from respondents. The quantitative research design was used in this study. This study's target group included all secondary school instructors and students from NDC's fifteen schools. The research relied only on primary data, and the survey tool selected was a rigorously constructed questionnaire. In this study, descriptive data analysis was utilised to summarise and display the results. The findings revealed that although the majority of respondents disputed that ICT is extensively or efficiently employed in Njombe District schools, they all agreed that ICT helps teaching

and learning. The primary difficulties and techniques for adopting ICT-based teaching and learning have also been recognised. According to the study's findings, the ministry of education should guarantee that ICT is appropriately incorporated into secondary school curricula and that internet connection is available in educational settings.

Key words: Teachers, Students, ICT, Teaching, Learning, Schools

Cyber security threats associated with digital banking Use in Tanzania

Goodluck Massawe and Allan Msolla

Cyber threats increase by the ongoing digitalization. More and more organizations rely on digital networks for their business operations. This increases the risk for organizations and their customers of becoming victims of cybercrime. Over the past few years there were several cyber-attacks in the banking sector and on various components of online banking. Those attacks varied from stealing money to disabling online payment systems such as online banking through websites and mobile apps. Cyber-attacks in the banking sector are mainly fraud related, because of the financial gain and have many forms. The impact of cybercrime has generated a significant risk exposure for individuals (personal harm) and organizations (reputational harm). It includes exposure to financial losses, regulatory issues, data breach liabilities, damage to brand and reputation, and loss of client and public confidence (Verma, Hussain and Kushwah, 2012). Cybercriminals can significantly threaten the finances and reputations of banks and other (financial) organizations. Moreover, it affects the relationship between the image of the organization and the trust that customers and other stakeholders have in the organization. Consequent negative publicity can create some serious issues for organizations when they become victims of cybercrime. The objectives of this study are: To identify the key areas in digital banking that concern security threats on its usage, to address the areas of improvement needed to be taken into practice as a mitigant on risk arise with security threats related to digital banking and to propose a proper and relevant framework for mitigating identified cyber security risks.

Keywords: Cybersecurity, Threats, Digital Banking

Impacts of distributed applications through the use of microservices technology: A Case Study of Morogoro Water Supply and Sanitation Authority (MORUWASA)

Ally Rajabu Hamisi and Ayoub M. Mswahili

In the rapidly evolving landscape of software development, traditional monolithic architectures struggle to meet the dynamic demands of complex applications and escalating user requirements. Traditional monolithic architectures pose challenges during software maintenance, disrupting the entire system and limiting scalability. Despite the effort and extensive research in the e-commerce and finance sectors, there is a significant research gap in understanding microservices' impact on system scalability and availability in water supply and sanitation authorities in developing countries. Therefore, this study introduces microservices technology as an innovative solution that offers modular and independent services, enabling system scalability and availability. The study aimed to investigate the transformative potential of microservices technology in the context of water supply and sanitation authorities in developing countries, focusing on the case study of Morogoro Water Supply and Sanitation Authority (MOROWASA). A total of 40 respondents from system stakeholders were selected randomly and purposively, including systems developers, ICT officers, and system users at MOROWASA. The comprehensive analysis illuminated a compelling narrative that the adoption of microservices significantly enhances both scalability and availability within the context of water supply and sanitation authorities. The modular design of microservices empowers systems to efficiently handle increased workloads and diverse user demands, marking a paradigm shift in the operational landscape of vital sectors such as MORUWASA. As we move forward, organizations akin to MORUWASA must consider the integration of microservices technology as a cornerstone of their operational frameworks.

Keywords: Monolithic Architectures, Microservices Technology, System Scalability and Availability

Impacts of social network marketing on ttcl brand awareness: A Case study of Tanzania Telecommunications Company Limited (TTCL)

John Moses Emmanuel and Juma Ally Mshana

A study was conducted at the Tanzania Telecommunications Company Limited in Dar es Salaam to assess the impact of social network marketing activities in enhancing

telecommunications brand equity. The research aimed to explore the influence of social network marketing on brand equity and involved 160 respondents from TTCL. The study used a mixed-methods approach, involving questionnaires and interviews, to collect data from the participants. The research delves into the specific objective of assessing how TTCL's social media marketing activities impact brand awareness among consumers. Preliminary findings suggest a positive correlation, indicating that TTCL's digital marketing strategies effectively enhance brand visibility. This study contributes practical insights for TTCL to refine its social media tactics, emphasizing the pivotal role of strategic brand communication in elevating brand awareness and, consequently, overall brand equity within the competitive telecommunications sector

Keywords: *Social Networks Marketing, Brand Equity, Brand Awareness, Customer and Telecommunication*

Digital Transformation for Sustainable Information Security: A Strategic Implementation Analysis of Selected Banks in Tanzania

Doris Peter Lyimo and Maria Lauda Goyayi

Tanzania has shown commitment to digitizing several of its operations for greater efficiency. The government has also developed an e-government strategy and set up an implementing institution. While some of the digital applications introduced have been successful, some have been facing some challenges. Banks and other financial institutions are known to be at the forefront of digitalization all over the world. One of the benefits of digital transformation is to deliver better customer experiences, drive efficiency, adopt innovation and ultimately generate business value. Despite the benefits of digital transformation, there have been some cybersecurity vulnerabilities and challenges associated with the transformation in financial institutions. This study examined the implementation strategy for digital transformation in Tanzania's financial institutions. The study used two banks, Maendeleo Bank and Mwanga Hakika Bank Limited to gain perspective. The study used a descriptive survey research design and a mixed research approach. A sample of 76 from a total of 91 respondents was selected using both probability and non-probability sampling techniques. Data were collected through structured questionnaires and interviews. The analysis of data was done through descriptive statistics, regression and content analysis. Findings revealed that there were

various digital transformation implementation strategies used by the financial institutions such as the use of digital transformation for cyber-attack prevention, cyber-attack detection, cyber-attack reaction to threats, training employees on digital issues, investment in digital infrastructures and digital experts. The study recommends that financial institutions should continue training digital users on the best practices of using digital systems and prioritize data risks by creating a classification policy based on data sensitivity. The study further recommends that financial institutions should allocate adequate budgets for digital transformation as a global trend. An adequate budget will help the selected banks to meet the expenses associated with digital transformation as banks need to continuously adjust every day and keep up with demands and technological changes. This is associated with having the right, digital-savvy leaders in place, building capabilities for the workforce in the future as well and empowering people to work in new ways.

Key Words: Implementation Strategy, Digital Transformation, Financial Institutions

Strategies to enhance the cyber security knowledge in Tanzania based on the CYBOK: A Case Study of Dar-es-Salaam at Tanzania Communication Regulation Authority and Dar es Salaam Institute of Technology

Emmanuel Simon and Juma A. Mshana

The aim of the study was to assess the strategies to enhance the cyber security knowledge based on CYBOK in Tanzania: A case study of Dar es Salaam institute of technology and Tanzania communication regulatory authority. The study was adopted a case study research design and mixed approach was used in this study. The study targeted the total population of 2168 including staffs from TCRA, DIT and undergraduate students from DIT. A total sample size of 506 was selected through non-probability sampling strategy called convenience and purposive sampling technique. Data were collected from the Dar es salaam Institute of technology and TCRA through structured questionnaires and Descriptive statistics such as mean and standard deviation were used to analyze data with the aid of SPSS software, version 20.0. Findings with their responses rates revealed that the best ways to enhance cyber security knowledge at both work place and education institution where those associated with Development of regular Workshops and Training Sessions to employee (57.7%) , Development of the training program that offer a certification upon successful completion

(89.2%) , Development of Cyber security Awareness Campaigns(72.9%) , Establishment of clear and concise cyber security policies and procedures (83.1%) , Train IT and technical teams on the importance of Regular Security Updates and Patch Management (79.6%) , Creation of internal cyber security knowledge hub or resource center where employees can access educational materials related to cyber security(80.5%). Furthermore at education institutions ,findings revealed that there were also a way to enhance cyber security that were associated with Development of Comprehensive Cyber security Curriculum include theoretical and practical component(78.4%), Employment of qualified instructors who have practical experience in the field and hold relevant certifications (85.7%), Set up well-equipped cyber security labs where students can practice real-world scenarios(81.6%), Invite cyber security experts from the industry to give talks and workshops to the student t(85.1%), Keep the curriculum and training materials up-to-date to reflect the latest cyber security threats and technologies (88.9%)and Establish a Cyber security club where students can meet, share knowledge, and work on projects together (86.6%).The study concludes that the strategies proposed for enhancing cyber security knowledge provides valuable insights for policymakers, educators, and practitioners in the field, guiding efforts to strengthen cyber security knowledge and resilience in the Tanzanian context.

Key words: Cyber security, knowledge, education institution, cyber security threats, cyber security curriculum

Assessing data privacy awareness among Facebook users in Dar es salaam: A case study in Dar es salaam, Tanzania

Evelyne Eliakim Maswi and Juma Mshana

This study aimed to assess the level of awareness among Facebook users in Dar es Salaam regarding data privacy measures and practices. It also aimed to investigate the influence of demographic factors, such as age, gender, education, occupation, and duration of Facebook use, on data privacy awareness. A descriptive research design was employed, and data were collected from a stratified random sample of 40 Facebook users in Dar es Salaam using structured questionnaires. Data were analyzed using descriptive statistics and multiple regression analysis to explore relationships between demographic variables and data privacy awareness. The study revealed that a significant proportion of participants (68%) were unaware of the various privacy settings available on Facebook. Only 42% reported having a

good understanding of Facebook's privacy policies. A majority of participants (75%) admitted to sharing personal information on Facebook without considering privacy implications. Despite limited awareness and concerns about privacy, 56% of users expressed trust in Facebook with their personal data. Multiple regression analysis showed that education level significantly influenced data privacy awareness, while age, gender, occupation, and duration of Facebook use did not have statistically significant effects. The findings highlight the pressing need for educational initiatives and interventions to raise awareness about data privacy settings and policies on Facebook, particularly among less-educated users. Additionally, fostering a culture of transparency and user involvement in privacy-related decision-making processes could enhance trust in social media platforms. Future research should explore the impact of cultural factors and community-oriented interventions on shaping data privacy attitudes in the region.

Keywords: Data Privacy Awareness, Social Media Privacy, Online Privacy Behaviors, Facebook Users, Demographic Factors

Perception of blended learning platforms by online students towards improving academic performance in Tanzania's higher learning institutions: A Case of Moodle at Institute of Accountancy Arusha

Faraja Nyuda Ntembo and Hamad Hiza Amdani

Blended learning has experienced significant expansion, driven by communication technological progress. This changing in educational setting has created significant opportunities for educators and students, enabling education to take place easily in traditional in-person classrooms and virtual settings. This study explores the extent of use of blended learning platforms by online students in Tanzania's higher learning institutions, specifically focusing on Moodle at the Institute of Accountancy Arusha. Utilizing a mixed-methods approach, the study involves a population of postgraduate students across multiple campuses. A sample size of 132 participants was selected using simple random. Obtained data from the study were analyzed through descriptive analysis. The findings indicate that there is a positive trend on the blended learning platforms usage. Therefore, the study recommends improving computer literacy programs, enhancing internet accessibility, exploring innovative methods for online interactions, establishing dedicated learning centers, and creating

responsive technical support systems to enhance the effectiveness of blended learning platforms in Tanzanian higher education.

Keywords; Blended Learning, Academic performance, online students, Higher Learning Institutions, Moodle

The impact of cybersecurity awareness program in public institutions: A case of Tanzania Communications and Regulatory Authority (TCRA)

Karim Hassan Maktauwa and Juma Ally Mshana

This study was conducted at the Tanzania Communications Regulatory Authority head office to assess the impact of the cybersecurity awareness program. The research employed a Protection Motivation Theory (PMT) theory, developed by Rogers in 1975. The study also looks at how the program affects TCRA's overall cybersecurity culture, incident and organization resilience that involved 101 respondents. The study used a descriptive research design with a mixed-methods approach involving questionnaires and interviews to collect participant data. The quantitative data was analyzed using SPSS, and qualitative data using thematic and explanatory procedures. The findings demonstrated that the cybersecurity awareness program significantly improved staff knowledge and awareness, which in turn influenced the attitudes and behaviors of employees toward cybersecurity practices, encouraging a culture of alertness and responsible digital behavior with a score of Mean = 3.1683 and Standard Deviation 1.44270. The study recommends regularly updating training content to cover emerging risks and technologies, providing clear and comprehensive guidelines on secure password practices such as the use of two-factor authentication, educating employees on best practices for using public Wi-Fi networks securely, such as VPN and Implementing continuous and targeted cybersecurity awareness training programs that address the dynamic nature of cyber threats. These initiatives are essential for enhancing an organization's cybersecurity posture, protecting confidential data, and upholding public confidence.

Keywords: Impacts, Cybersecurity, Awareness, Public Institutions, Cyberthreats

The perceived usefulness of social media among government officers at Tanzania

Adrina Festo and Marialauda Goyayi

The study examined the perceived usefulness of social media among government officials in Tanzania using Tanzania Broadcasting Corporation(TBC as a case in focus).As a tool, social media has been useful among government officials through sharing information content of people's feelings, news or events. Technology Acceptance Model(TAM) guided the descriptive research upon which a sample of 99 respondents drawn using simple random sampling technique from a population of 152 officials participated in the study. Data collected through structured questionnaires were analyzed using descriptive statistics such as mean and standard deviation with the aid of SPSS (Version26.0).Findings revealed that government officials equally perceived social media to be useful in sharing information, formation of online groups and in obtaining quick notifications. Additional government officials at TBC found social media provided a platform for learning new things and updating one on various information. Social media is perceived to enhance their live video conversations which have become a necessity in the day to day operations in recent years. The study recommends that for safe use of social media, the government through its regulatory body should consider revising the cyber security policies especially those related to social media so that they are used in official activities. The study further recommend that the social media users should be given awareness on how best they can use social media without being cyber-attacks victims. Moreover, the government through Tanzania Communication Regulatory Authority (TCRA) should consider revising their policies related to the cost of internet so that social media users can afford internet bundles.

Key Words: Usefulness, Social Media ,Government Officials, Tanzania Broadcasting Corporation

Evaluation security challenges facing mobile money users in Tanzania: The case of Tigo Pesa Company

Ismail Abdul Shemngodo

This study aimed to evaluate security challenges facing mobile money users in Tanzania using the case Tigo pesa within Kinondoni District. Specifically, the study examined various demographic characteristics that influences mobile money security awareness, key security challenges associated with mobile money services, and lastly measures for mitigating the mobile money security challenges. A descriptive research design was employed with the aid of both quantitative and qualitative approach. The targeted population for this study was Mobile Money customers, agents, and Mobile Money administrators from TIGO. A sample

size of 191 respondents was used. Questionnaire and individual in-depth interview were employed as the data collection tools. IBM Statistical Package for Social Scientists (SPSS) (version 21) package was used as the data analysis tool. The results revealed a significant relationship between demographic variables such as age, education level and duration of mobile money usage with mobile money security challenge such as identity theft, authentication attacks and phishing attacks. Also, the findings revealed that mobile money users are at risk due to the use of the internet on their mobile phones which accounts 86.2% of the mobile money users. The findings of this study further revealed that some of the users more than a half (53.7%) do not use any security mechanism such as antivirus to protect their mobile device and mobile money service. The study shown that over 75% of respondents use weak authentication (four-character password that include only letters or numbers) to protect their mobile money wallets. Furthermore, the results revealed that over 56.7% of the mobile money users do not much audit their mobile money transactions. Moreover, the study in mitigating mobile money security challenges mentioned various ways and measures including taking strict measures against fraudsters; reporting any security incidences or fraud to the regulators and security agencies, the use of strong authentication controls such as multi-factor authentication, customer security awareness campaigns to increase customer education and protection, agent training on acceptable practices, comprehensive legal document to guide mobile money service and mobile money service providers to monitor high-value transactions.

Key Words: Mobile money; mobile money systems; mobile money operators; mobile money security, Mobile Money Transactions; Tigopesa; Kinondoni District.

Assessing the Level of Awareness among Tanzanians Regarding the Concept and Benefits of E-Passports: A Case of Immigration Service Department- Kurasini Office, Dar es Salaam

Daniel James Mwaikambo and Edwin Marco Kwesigabo

The implementation of e-passports is one of the strategies used by the governments to modernize and improve passport services, border control and combat passport fraud. Electronic passport incorporates modern security elements such as biometric data, photo digitization, and machine-readable technology. Despite the government of Tanzania's efforts to curb passport fraud by conducting extensive publicity campaigns and public forums to educate citizens about the new passport requirements and procedures, as well as the benefits

of the system the number of Tanzanians holding e-passports is quite small. This study assesses the level of awareness among Tanzanians regarding the concept and benefits of e-passports, taking the experience of the Immigration Services Department- Tanzania. The study involved 148 participants who were passport applicants and staff from the immigration department. Simple random and purposive sampling were used to get participants. In conducting this study descriptive design was deployed, data was collected by using a mixed approach while data was analyzed by using SPSS version 26. The findings revealed that, despite the government's actions, applicants continue to be unaware of e-passports. The study found that the majority of applicants lacked knowledge and public awareness about Tanzania's e-passport, and this hindered applicants' readiness to apply for a new electronic passport. This implies that government measures to raise applicants' awareness of the use and benefits of e-passports are not reaching them. The study suggests that awareness campaigns, education, and programs to improve knowledge of the use and benefits of e-passports for Tanzanians be prioritized. Also, the IT and Immigration officers at the Tanzania Immigration Services Department must work hard to create a user-friendly system that provides clear instructions and guidance throughout the application process.

Keywords: Awareness, E-Passports and Tanzania Immigration Services Department

Analyzing the effectiveness of service delivery of the outsourced epicor 10 on public sector performance: Evidence from Medical Stores Department (MSD)

Allen Bernego Mwasigala and Juma Mshana

This study analyzed service delivery effectiveness. The study employs a combination of quantitative analysis, qualitative insights, correlation analysis, and regression modeling to shed light on these critical aspects of public sector management. Effective service delivery, especially through technological integration, plays a pivotal role in enhancing public sector performance. The motivations for outsourcing are primarily cost reduction and access to specialized expertise. The study's correlations, regression model, and recommendations emphasize the interconnected nature of these variables, with service delivery efficiency, reasons for outsourcing, and performance metrics being key drivers of public sector performance. Recommendations for public sector organizations include diversifying performance metrics to gain a nuanced understanding of system performance, continuous monitoring and evaluation of outsourced information systems, emphasizing efficient service delivery to reduce administrative burdens and foster trust, investing in data security and

privacy measures to maintain public trust, pursuing strategic outsourcing with clear rationales aligned with broader organizational goals, and actively leveraging the specialized expertise offered by service providers.

Keywords: Service Delivery, Public Sectors Performance, Medical Stores Department, Epicor 10, Outsource

Influence of enterprise resource planning systems in enhancing internal controls in public sector health insurance industry in Tanzania: A case study of the National Health Insurance Fund

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The research, which focuses on the broader context of internal controls, quietly reveals the numerous processes that determine misappropriation risks in public sector health insurance. The quantitative findings highlight the importance of a collaborative, interdisciplinary approach, since both accountants and IT specialists realize the ERP system's potential benefit and Concur that ERP system access controls have a favorable effect on internal controls in the public sector health insurance business. The results of regression analysis show a strong positive association ($p\text{-value}=0.0036$, $\text{coefficient}=0.9432$) between the enhancements of internal control and real-time monitoring features. Data integrity features and access control capabilities have a substantial positive link ($\text{correlation}=0.89$), according to correlation study. According to frequency analysis, 63.9% of IT specialists concur that resources must be set aside for data accuracy measures in ERP systems. In general, the report recommends improved cooperation and offers practical solutions.

Key Words: Enterprise Resource Planning Systems, Public Sector, Health Insurance industry, Enhancing, Internal controls, Data integrity

The effect of electronic banking on customer satisfaction: A case study of CRDB Bank in Dar es Salaam

Shirley Mahiku and Maria Lauda Goyayi

This study aimed to gain a comprehensive understanding of the impact of electronic banking, specifically electronic banking payment services on customer satisfaction at CRDB bank. The study employed a survey research design and a mixed research approach that included both qualitative and quantitative data. The sample size consisted of 172 respondents, comprising

10 staff members from CRDB and 162 bank customers. Interviews were conducted with staff members, while customers were surveyed using questionnaires, allowing for the collection of both primary and secondary data. The key findings of the study revealed several important insights. Firstly, there was a moderate positive influence of payment services on customer satisfaction. Customers generally felt confident about the security of their personal and financial information when using electronic banking services at CRDB. This suggests that improving electronic payment systems could further enhance customer satisfaction. The recommendations include enhancing electronic payment systems to further improve customer satisfaction, investing in reliability to ensure consistent and dependable electronic banking services, strengthening security measures to maintain customer confidence in the security of their personal and financial information, simplifying deposit services to make them more accessible and customer-friendly, and prioritizing secure and streamlined withdrawal services to enhance the overall satisfaction of CRDB customers.

Keywords: Electronic banking, Customer Satisfaction

The Influence of Attitudes in the Adoption of E-tickets on Sports Events Performance

Zuhura Kitunda and Kenneth L Mlelwa

E-tickets appear to have several benefits for enterprises, including reduced costs and improved operational effectiveness. As such, it is projected that the use of e-tickets will only continue to increase over time. Even though e-ticketing services appear to be the future of operations for many organizations seeking to streamline operations and improve customer service, research regarding e-ticket and eService indicates that these processes have not been without their challenges. The study examined the influence of attitudes in the adoption of e-tickets on sports event performance. The study employed a mixed research approach; a descriptive study design was employed while the sample size used was 133 respondents. In the same way, thematic and SPSS were employed as data analysis techniques. The study findings revealed that respondents' attitudes significantly impact their overall perception and experience of the eTicket system. A positive attitude towards eTicket usage was associated with higher levels of agreement regarding its impact on various aspects of sports services. The study concludes that a better user experience and increased efficiency in accessing sports services contributed to improved sports events performance. Although the impact of attitude was marginally significant and suggested that a positive attitude towards using eTickets can influence sports event performance positively. The study recommends that there is a need to

continue prioritizing user-centric design in the development of eTicket systems. Ensure that the systems are intuitive, user-friendly, and straightforward to use. Conduct regular usability testing and gather user feedback to continuously improve the system's ease of use.

Keywords: Attitudes, E-tickets, Sports Events, Performance

Assessing the effectiveness of authentication and encryption mechanisms in securing wireless LAN networks in public institutions; a case of ministry of finance and planning at Dodoma

Rehemarose Luwongo and Happiness Mkumbo and Theophil Assey

The study determines how wireless network LAN's encryption and authentication mitigate security risks and protect sensitive data's confidentiality, integrity, and availability. This study uses the Ministry of Finance and Planning in Dodoma as a case study to examine how authentication and encryption procedures secure WLANs in public institutions. It also seeks to inform politicians and IT professionals who safeguard vital government data. Descriptive study design collects data through questionnaires. This study collected objective-related data using quantitative methods. The study targeted management officials, chiefs of departments, and other ministry personnel because they use Wi-Fi networks most in their regular job. Simple random sampling was used in the investigation. The quantitative data was collected through questionnaire with closed-ended questions. The data was analyzed quantitatively. The study sampled 90 randomly selected employees from the target population. The analysis reveals that the Ministry of Finance and Planning has successfully deployed authentication systems, mostly employing WPA2-Enterprise and 802.1X protocols. The study revealed the presence of encryption mechanisms, specifically WPA2-Personal and WPA2-Enterprise, which provide data encryption for wireless LAN transmissions, as indicated by the available data. The research revealed the implementation of encryption methods, specifically WPA2-Personal and WPA2-Enterprise. Nevertheless, the existence of gadgets that utilize obsolete encryption techniques raises a substantial apprehension. The research's conclusions shed light on how authentication and encryption algorithms are currently being used in the wireless LAN network at Dodoma's Ministry of Finance and Planning. Although the institution had taken significant steps to improve network security, there are still some areas that require improvement. The study's recommendations offer a tactical approach for enhancing overall security, ensuring the confidentiality, integrity, and accessibility of critical data in a situation vulnerable to dynamic cyberattacks.

Keywords: *authentication mechanisms, encryption mechanisms, wireless LAN networks, public institutions and data security*

The perception of Tanzanian consumers regarding the adoption of cryptocurrencies as a mode of transaction in the commercial banking sector in Tanzania

Repidius Muganyizi Kamala and Thadei Kiwango

The study examined the perception of Tanzanian consumers regarding the adoption of cryptocurrencies as a mode of transaction within the commercial banking sector in Tanzania. Quantitative research approach was used. Structured questionnaire was employed in data gathering. Data were analyzed using frequency, percentage, mean, standard deviation and multilinear regression. The study found a strong relationship between the perception of consumers and the adoption of cryptocurrencies in the commercial banking sector in Tanzania ($R = 0.846$). It was further revealed that, 82.3% of the variation in the adoption of cryptocurrencies as a mode of transaction is explained by the perceived awareness, perceived trust, and perceived usefulness. It was found that awareness, perceived trust, and perceived usefulness have a significant portion of the variability in the adoption of cryptocurrencies. It was concluded that 82.3% of the variation in the adoption of cryptocurrencies as a mode of transaction is explained by the perceived awareness, perceived trust, and perceived usefulness. The remaining 17.7% of the variation could be influenced by other factors not considered in the model or by the inherent variability in the data. Overall, the factors provided statistics suggest a robust relationship between consumer perception and adoption of cryptocurrency in the commercial banking sector in Tanzania. It was recommended for the early improving communication, user experience, and aligning cryptocurrency features with consumer needs are key factors in enhancing perceived awareness, perceived trust, and perceived usefulness as initiatives for promoting early adoption of cryptocurrency

Keywords: consumer, awareness, trust, usefulness, cryptocurrencies

Factors affecting the adoption of e-procurement system for selected security companies in Tanzania

Joseph Ntulo

The, study aimed to understand the factors influencing the adoption of the e-procurement system by referring three selected private security companies in Tanzania. A case study

research design was which identified the characteristics, frequencies, trends and categories e=procurement adoption was used. The design was employed since much is known about e-procurement but yet about the study area. A mixed research approach that involved a use of quantitative and qualitative approaches was used in this study. This study utilized questionnaire and interview tools for data collection. The questionnaire gathered information from 163 staff in selected Tanzanian private security companies, while interviews with top management supplemented the qualitative data. Quantitative data analysis was performed using SPSS Software Version 20, and qualitative data were analyzed through content analysis and argumentation processes using Excel software. Regarding the first objective, it was found that (53.4% strongly agreed, 27.6% agreed) that top management commitment contributes to the adoption of the e-procurement system. The second objective, shows that of 45.4% agree and 28.8% disagree while 25.8% agree strongly that technology capacity influence adoption of the e-procurement system in private security companies. Concerning third objective, the findings show that 47.9% of respondents agree that resource management is one of the bigger challenge hindering adoption and implementation of the e-procurement system in the study area while other factors also contribute to this challenge. The study recommends capacity building for e-procurement system users and improvements in capital infrastructure.

Keywords: Procurement systems, electronic procurement system

The role of information and communication technology governance on data management at Tanzania Revenue Authority

Michael Karlo Luanga and Mniko Simon

This study investigates the role of to assess the role of Information and communication technology (ICT) governance in data management at Tanzania Revenue Authority (TRA). This paper was guided by three objectives including to examine the role of the tax administration system on tax data management at the Tanzania Revenue Authority, to determine the role of the information management system on data management at the Tanzania Revenue Authority and to Identify the challenges to the adoption of ICT technologies for data management at the Tanzania Revenue Authority. The study was guided by Diffusion innovation theory (DIT) and Technological Acceptance Model (TAM). The study employed a cross-sectional design with the help of questionnaire as the data collection instrument. Using 241 respondents and regression analysis, the findings indicates that tax administration system and information management system has strong influence on data

management in TRA. Furthermore, the study findings show that adoption challenges reduce the effectiveness of data management at TRA.

Keywords: Information and Communication Technology, Tanzania Revenue Authority, Tax Administration System, Information Management System, Adoption challenges.

Factors influencing cybercrime activities in the mobile money industry

Mmbaga Peter J and Germanus Chole

This paper investigates the factors influencing cybercrime activities in the mobile money industry, merging trends communication technology and the current situation in mobile money transaction basically in Tanzania. The purpose of this study is to evaluate the factors which leading to crime with the rapid growth of information technology and cybercrime in mobile money service. In the field of information, cybercrime plays a significant role in the sphere of information and communication technology particularly on mobile money service. Although the report acknowledges that telecommunications firms offer mobile money services, the first thing that springs to mind when considering cyber security is "cyber crimes," which are becoming a problem due to their rapid increase in frequency. The majority of cybercrimes are committed using mobile money services and the internet. One of the biggest issues facing society today is "information security". Numerous governments and businesses are implementing numerous efforts to deter these cybercrimes. Despite the numerous steps taken, many people continue to have serious concerns about cyber security. This essay primarily addresses the difficulties that cyber security faces in light of contemporary ICT and cybercrime. The major topics of this essay are cyber security issues with modern ICTs and cybercrime, particularly with regard to Tanzanian mobile money transfer services. It also focuses on the most recent developments in cyber security methods, morality, and emerging trends. Data were gathered from mobile money industry, consumers of mobile money services, and the Tanzania Police Force's cybercrime section. The analysis established many facts using the Pearson Correlation model in addition to descriptive methodologies.

Keywords: Cybercime, Mobile Money, Cyber security, Information communication, Technology