

Exploring the Challenges and Adoption Dynamics of E-procurement in Private Organizations in Singida, Tanzania: A Survey-Based Analysis

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Abstract

The study explored the challenges and adoption dynamics of E-procurement in the private organizations, a case of Singida Region. The study targeted hospitals, schools, shops (retail and wholesale), hardware shops, garages, hotels, restaurants, and petrol stations around Singida. Primarily, the study investigated challenges in using E-procurement and factors affecting the adoption of E-procurement among retail and wholesale companies in Singida. Ultimately, it aims to bridge the gap between theory and practice by offering actionable recommendations for maximizing the benefits of E-procurement in the private organizations. A cross-sectional survey design was used, and a total of 50 privately owned organizations were selected, along with a sample of 50 respondents (using a judgmental sampling technique), one member from each organization. The investigation through a descriptive analysis, Pearson correlation coefficient and multiple regression analysis with a p-value of 0.05 uncovered that the uptake of E-procurement in Singida has been slow and confined. A combination of cost and financial constraints, political factors, and software network availability contributed to this predicament. To tackle these obstacles and advance electronic procurement in Tanzania, the investigation recommends diverse strategies like training and support, a user-friendly interface, integration with existing systems, and vendor collaboration as key factors in making E-procurement easier to use. On the other hand, there is more contention regarding strategies like creating a standard policy and regular communication on the patterns of procurement processes.

Keywords: *Challenges, Adoption, E-procurement, Private organizations.*

1.0 INTRODUCTION

Owners of private institutions around the world are aware of the importance of E-procurement as a mechanism to enhance the competitive advantage of organizations (Kauffman, 2010). The use of internet procurement brings a variety of advantages like maximizing efficiency, reduction of purchasing cycle time, ensures transparency and increases supplier cooperation plus cost saving through improved procurement process. However, the inclusion of E-procurement systems with Enterprise Resource Planning (ERP) strengthens data accuracy,

reporting capabilities and strategic decision making. In order to gain these advantages, private firms have embarked on the journey of E-procurement usage. The initiation of the internet and its accompanying information and communication technologies (ICTs) has conveyed the whole industry across various sectors all over the world (Dai *et al*, 2010). According to Borgman and Egan (2015) the application and employment of internet-based ICTs have transformed whole industries which results to the enlargement of efficiency, cost saving and upgraded communications.

In reshaping business operations, the internet and digital technologies have high potential in both private and public organizations. The Internet plays a major role in enhancing efficiency, transparency, value for money, and collaboration among stakeholders through the use of E-procurement systems (Harris, *et al.*, 2014). Electronic tools used in E-procurement include online platforms, digital communication, and data exchange to streamline procurement processes.

Companies originating from nations characterized by lower levels of aversion to uncertainty, such as Germany and the UK (60% to 67%) are the pioneers in embracing internet-based procurement, while Spain and France show lower rates (32% to 42%) of adoption. This was revealed by Batenburge, (2017), in his research on the adoption of E-procurement among European enterprises. Many companies and institutions across the world have opted for E-procurement because it saves operation costs as procurement consumes up to 75% of the budgetary spending (Turban, *et al.*, 2000).

Researchers have pointed out the need for ongoing research to assess the long-term impact of E-procurement systems in Sub-Saharan Africa. Additionally, the role of mobile technology in E-procurement and the potential for block chain-based solutions have been identified as emerging trends (Amankwah, *et-al.*, 2020).

According to Oladele (2018), E-procurement systems have the potential to reduce corruption by increasing transparency and accountability in procurement processes in Nigeria. However, the literature also highlights the need for effective monitoring and enforcement mechanisms. E-procurement adoption is not limited to the public sector, private enterprises in Sub-Saharan Africa like Nigeria have also begun to leverage E-procurement systems to improve their supply chain efficiency. This can lead to a more competitive business environment (Temitope, 2019).

E-procurement adoption faces significant challenges in Kenya, including limited internet connectivity, infrastructure gaps, digital literacy, and resistance to change (Kiplangat, 2018). The literature frequently emphasizes the need to address these barriers to ensure successful implementation. According to Musyoka (2017), the Government of Kenya has recognized the potential benefits of E-procurement in reducing corruption and improving public procurement efficiency.

Adoption of E-procurement in Tanzania is still in its infant stages (Mchopa, 2012). Few private companies, especially those with foreign ownership, have adopted the use of E-procurement in Tanzania, but they still face a lot of challenges. E-procurement in Tanzania has been adopted by only 38% of the existing 12,350 procuring entities. Mchopa further argued that the adoption of E-procurement is influenced by technological and financial factors. Limited investigations have been conducted on the functionalities of E-procurement utilized by organizations that encompass all three dimensions of the E-procurement context: technological aspects, organizational structure, and external surroundings. The few investigations which have been conducted indicate that the low rate of E-procurement is due to the fact that in most cases many procuring entities have not adopted or have partially adopted E-procurement in Tanzania in such a way that the adoption level which is aimed to increase to 76% in the next ten years can fail (<https://www.psptb.go.tz/uploads/files/P19.pdf>, 10th Oct. 2023 4:59pm).

In Tanzania, PPRA has introduced a new E-procurement system called NeST (National E-procurement System of Tanzania) that facilitates e-registration, e-tendering, e-contract management, e-payments, e-catalogue, and e-auction. NeST facilitates the various stages involved in acquiring Goods, Works, Consultancy, Non-Consultancy services, and Asset Disposal. This system aids in diverse public procurement methods, encompassing tasks such as user enrollment, notifying interested parties about tenders, preparing and submitting tenders online, evaluating tenders digitally, awarding contracts, establishing and overseeing catalogs, creating and managing framework agreements, conducting auctions, and handling payments. For the system to work perfectly and efficiently, it needs the interaction and involvement of vendors to bid on tenders. The vendors' list includes both private and public vendors.

Based on the 2022 regional operations report issued by the Regional Commissioner, it was observed that in Singida, both private and public sectors predominantly conduct procurement and purchasing activities manually, particularly within the private sector, which can be attributed to various factors. The adoption of electronic payment methods for suppliers has not yet been put

widely into practice in the region. Instead, payments are executed through the issuance of printed checks or transfer notes in many institutions. These payments are then either collected or delivered in person, or they are physically processed by visiting the supplier's bank for transfer into their account. An absence of integration is evident between the systems of key stakeholders, including the Tanzania Revenue Authority (TRA), shipping lines, ports, and commercial banks. These entities function autonomously, requiring physical visits whenever consignments need to be cleared and tracked.

The gap primarily revolves around the lack of specific insights into factors affecting adoption of E-procurement systems in the private sector in Singida; Challenges in using E-procurement in the private sector in Singida; and the need for tailored strategies to leverage these systems effectively in the private sector. Ultimately, it aims to bridge the gap between theory and practice by offering actionable recommendations for maximizing the benefits of E-procurement in the private sector. Therefore, this study seeks to address the potential challenges in using E-procurement in private organizations in Singida, factors affecting adoption of E-procurement systems in the private sector in Singida, and offer insights on how to better leverage E-procurement practices in private organizations in Singida.

Theoretical perspective

The study was guided by Technology-Organization-Environment (TOE) theory. The theory was founded by Tornatzky and Fleicher in 2017. The theory shows the contribution of innovation on industrial shifts. TOE theory aligns with the challenges and factors affecting the adoption of E-procurement. Specifically, within innovation, TOE theory recognizes elements such as organization design, company culture, and the availability of assets as significant contributors to industrial shifts in technology. In the context of this study, these factors can be considered challenges or facilitators influencing the adoption of E-procurement in private organizations.

So far, the study employed the Institutional Theory. The proponents of this theory are DiMaggio and Powell and it was established in 1983. These theorists developed an Institutional Theory in order to analyze how institutional factors hinder or facilitate tech integration. The Institutional Theory directly addresses how institutional barriers, influenced by organizational culture, design, and functioning patterns, affect the adoption of new technology. Hence, it is directly applicable to understanding how institutional factors impact the adoption of E-procurement as the dependent variable.

Resource-Based View (RBV) by Barney (1991) was also used in this study. This theory explains how gaining an upper hand in competition necessitates effective management of assets. He also adds that resource constraints related to finances and trained professionals frequently hinder the adoption of Information and Communications Technology (ICT). RBV theory aligns with the challenges of adopting E-procurement, particularly emphasizing how resource constraints related to finances and trained professionals hinder the adoption of ICT. In the context of this study, these resource constraints can be considered challenges affecting the adoption of internet-based procurement.

2.0 METHODOLOGY

Survey based cross-sectional research design was used in this study to test the hypothesis on potential challenges undermining the incorporation of E-procurement in private organizations in Singida and on factors affecting adoption of E-procurement in Singida. Fifty companies were sampled by purposive (judgmental) sampling. This sample was involved in the selection of specific organizations that were deliberately using the E-procurement. Survey was done to 50 selected private organizations in Singida where quantitative data were obtained (Table 1). Companies involved were hospitals, schools, shops (retail and wholesale), hardware shops, garages, hotels, restaurants, churches, mosques and petrol stations within Singida municipality. All types of organizations are collectively treated as the Unit of Analysis; therefore, the findings represent a combined perspective, providing an overall picture of E-procurement adoption in private organizations in Singida. For each company a questionnaire was given to one person, either a manager or a person in charge of purchases/procurement.

Primary data for this paper was collected through a quantitative data collection method using questionnaires. The total sample size for this research was 50 private companies. One key player in each selected private company (a manager or any member involved directly in company purchases/procurement) was given a questionnaire to fill.

Table 1: Sample size for the study

S/N	Organization category	Total Sample
1	Hospitals	3
2	Schools	7
3	Shops	12
4	Hardware	7
5	Garages	5
6	Hotels	5
7	Restaurants	4
8	Churches	2
9	Mosques	2
10	Petrol Stations	3
Total		50

The study ensured validity and reliability through various steps. Secondary sources were examined carefully, primary informants provided feedback on the report outline, and procedures were compared to similar studies. Questionnaire results were verified by experts for external validity. According to Yin (2016), maintaining precision and dependability involves using a consistent survey approach. Another researcher should achieve the same results for reliability, requiring careful documentation and data scrutiny. These steps were taken to enhance the study's credibility and consistency (Troost, 2010). Statistical Package for Social Science (SPSS) software version 25 was used to analyze Quantitative data generated through the survey. Descriptive statistics, Pearson correlation coefficient analysis and multiple regression analysis, were the three types of analyses conducted for this study. Descriptive statistics helps to evaluate the link between variables and generates frequency distribution tables. For the first and second objectives of the study, Descriptive statistics, and Pearson correlation coefficient analysis was employed, and for the third objective Descriptive statistics and multiple regression analysis was conducted. It is important to highlight that only the responses of individuals who indicated their utilization of E-procurement were considered for this analysis

3.0 RESULTS AND DISCUSSION

3.1 Factors affecting adoption of E-procurement in Singida

The study explored the challenges facing private organizations in using E-procurement in Singida. Variables under study were availability of the internet, cost of acquiring and operating E-procurement technologies, spread of software, financial constraints, availability of IT manpower and political factors. The distribution of responses from respondents for these variables is presented in Table 2. Based on the Table, 8% of respondents said the use of E-procurement is

affected by the availability of E-procurement packages. On the same view, 24% of the respondents reported that the use of E-procurement is affected by the cost of acquiring and operating the packages, the user-friendliness of the technologies and tools (8%), the geographical reach of the software and network accessibility (15%), financial limitations (18%), the availability of IT expertise (5%), and political elements (22%).

Table 2: Factors affecting adoption of E-procurement in Singida

Factors affecting adoption of E-procurement use	p-Value	Factor	Percentage
Availability of E-procurement packages	0.1	10.7	8%
The cost of acquiring and operating the package	0.0	20.6	24%
Extent to which E-procurement technologies and tools are easy to use	0.1	5.1	8%
The geographical spread of the software and network availability	0.0	11.0	15%
Financial constraints	0.0	14.5	18%
Availability of IT manpower	0.1	4.6	5%
Political factors	0.0	15.9	22%

The factors presented in Table 2 were all statistically significant meaning that all these factors affected the E-procurement adoption in Singida based on the p-value which was less than 0.05 to all variables. For instance, taking financial constraints into account, in Tanzania various studies including that of Chauhan *et al.*, (2016) have shown that those institutions with a lot of well-trained ICT manpower that can handle ICT issues can easily acquire the software once the money is available. So far, these findings are in line with those of Aduwo *et al.*, (2016) who stated that although the uptake of E-procurement technologies and processes by businesses and organizations has been very impressive in the developed countries, the same cannot be said in many developing countries like Tanzania where the uptake of E-procurement is rather slow and low due to technical factors like infrastructure, political, social, and cultural issues; the lack of evidence of the benefits of E-procurement in the building industry; and lack of financial ability to use E-procurement systems in different organizations.

3.2 Challenges in using E-procurement in the private sector in Singida

Table 3 below shows the level of agreement on the challenges of using E-procurement in Singida in order to examine patterns and trends in the data and identify items with consistently high or low scores to understand which aspects are perceived as more or less challenging by participants. Based on the table, respondents agree and disagree if the factors are a challenge or not. Majority of respondents (87.2%) agree that security concerns is a challenge. A significant

proportion (90%) of respondents disagree that technology/system integration is a challenge. A substantial percentage (78%) disagree that change management is a challenge. The majority (98.8%) agrees that costs, both maintenance and purchase, are a challenge. Respondents seem to have concerns about network reliability in Singida since most of the areas in Singida do not have stable network connections, with 90% agreeing to it. A large percentage (95%) agrees that user training is a challenge. Respondents acknowledge the challenge of stakeholders' collaboration, with 91% strongly agreeing. Effective collaboration with various parties is seen as important. A significant proportion (87 %) agrees that data privacy and compliance are concerns. Complexity in usage is acknowledged as a challenge, with 44.6% strongly agreeing. A notable percentage (13.5%) strongly disagrees, suggesting varying perceptions of complexity. Views on customization and flexibility are mixed, with a significant percentage (30%) strongly agreeing.

Table 3: Challenges using E-procurement in the private sector in Singida

Challenges of using Internet-based procurement	Strongly Agree	Agree	Disagree	Strongly Disagree	No Comment
Security concerns	60.2	26.8	10	3	0
Technology/system integration	3	7	69.3	20.7	0
Change management	12	10	45	33	0
Cost (maintenance and purchase)	89	9.8	1.2	0	0
Network reliability	50	40	8	2	0
User training (on IT, E-procurement tools)	76.4	18.6	5	0	0
Stakeholders' collaboration (PPRA, other companies and suppliers)	69	22	8	1	0
Data privacy and compliance	60.2	26.8	9	3	1
Complexity in usage	44.6	31.4	10.5	13.5	0
Customization and flexibility of the systems	30	23	24.7	22.3	0

Cost (maintenance and purchase cost): this emerged as the topmost challenge faced by Singida private companies while adopting E-procurement. This finding agrees 100% with Loh and Koh (2019) research which revealed that most medium and small enterprises face a challenge in having enough money to invest in implementing procurement systems and training.

User training: From the finding's user training takes the second topmost challenge in adopting E-procurement in Singida since comprehensive training programs are crucial in empowering employees to effectively utilize ICT tools

and minimize user-related challenges. The findings agree with Chauhan and Singh (2016) who emphasize the challenges arising from inadequate training programs.

Network reliability and stakeholder collaboration: Most of the private firms in Singida face network unreliability due to poor network infrastructure in most areas of Singida Region. Results show that private firms in Singida still face challenges in using E-procurement due to defective network infrastructure. This finding agrees with Huang *et al.* (2017) finding that indicates network reliability disrupts procurement processes. Stakeholders' collaboration is important for E-procurement systems to work. In Singida this is also a challenge since most stakeholders such as suppliers, procuring entities, and PPRA, do not show prompt cooperation in using E-procurement systems. This finding agrees with Liu *et al.* (2018) that dictates the results on the challenges of supplier readiness.

Security concerns and data privacy: Findings show the same percentage of these two in adopting E-procurement in Singida. Companies are afraid of adopting E-procurement because of cyber security and privacy of their data. Research by Tang and Musa (2015) highlighted that organizations faced challenges in ensuring data privacy and protection from cyber threats. Addressing these challenges was crucial to fostering trust in E-procurement systems.

Complexity and customization of the system: Findings suggest that while some users in Singida's private organizations find E-procurement systems complex, others do not. This highlights the importance of designing intuitive interfaces and providing user-friendly experiences to cater to a diverse user base. Findings by Gunasekaran *et al.* (2017), revealed that complexity of E-procurement systems can create challenges for users. The varied responses in this category emphasize the diverse preferences and needs of users. Organizations need to strike a balance between providing customization option and maintaining a certain level of system standardization. El-Mekawy and Ramadan (2015), found out that lack of flexibility can result in resistance and limitations in adapting to evolving procurement practices.

Technology integration and change management: contrary to Chen and Zavadskas (2017) and Devaraj *et al.* (2016), findings from this study show that technology integration and change management are not challenges that most private companies in Singida face when adopting internet-based procurement.

Pearson correlation coefficient analysis on the challenges of using E-procurement in the private sector in Singida

From Table 4 below, each cell represents the Pearson correlation coefficient between two challenges. The diagonal elements (top left to bottom right) represent the correlation of each challenge with itself, which is always 1. The off-diagonal elements show the correlation between pairs of challenges. Positive values indicate a positive correlation, while negative values indicate a negative correlation. A value closer to 1 or -1 indicates a stronger correlation, and a value closer to 0 indicates a weaker or no correlation.

Table 4: Pearson correlation coefficient analysis on the challenges of adopting E-procurement in the private sector in Singida

Challenges	Security	Technology	Change Mgt	Costs	Network	Training	Collaboration	Data Privacy	Complexity	Customization
Security Concerns	1.0	-0.2	-0.1	0.5	0.2	0.1	0.0	0.9	-0.1	-0.3
Technology/System Integration	-0.2	1.0	-0.3	-0.5	-0.2	-0.2	-0.3	-0.2	0.4	0.7
Change Management	-0.1	-0.3	1.0	-0.7	0.0	-0.1	-0.2	0.0	0.4	0.1
Costs (Maintenance and Purchase)	0.5	-0.5	-0.7	1.0	0.2	0.4	0.0	0.4	-0.5	-0.4
Network Reliability	0.2	-0.2	0.0	0.2	1.0	0.3	0.2	0.3	0.0	-0.2
User Training (on IT, E-procurement Tools)	0.1	-0.2	-0.1	0.4	0.3	1.0	0.4	0.3	-0.1	-0.2
Stakeholders' Collaboration (PPRA, Other Companies and Suppliers)	0.0	-0.3	-0.2	0.0	0.2	0.4	1.0	0.2	-0.1	-0.1
Data Privacy and Compliance	0.9	-0.2	0.0	0.4	0.3	0.3	0.2	1.0	-0.1	-0.3
Complexity in Usage	-0.1	0.4	0.4	-0.5	0.0	-0.1	-0.1	-0.1	1.0	0.7

Findings show that, Security concerns have a strong positive correlation with Data Privacy and Compliance (0.892). This highlights that organizations with security apprehensions also emphasize the significance of maintaining data privacy and adhering to compliance standards, as evidenced in Smith & Johnson, R. (2018) findings where they discovered that there is strong positive correlation (0.85) between security concerns, data privacy, and compliance. Technology/System Integration has a strong positive correlation with Customization and Flexibility of the Systems (0.673). These findings suggest that organizations encountering integration challenges are concurrently seeking adaptable systems. Brown and Davis (2020) in their research on Strategic Integration for System Flexibility and Customization find the same results.

Change Management has a negative correlation with Costs (Maintenance and Purchase) (-0.717), signifying that organizations facing change management hurdles tend to incur higher expenses. Costs (Maintenance and Purchase) have a strong positive correlation with Data Privacy and Compliance (0.447). This noteworthy positive correlation that exists between costs (maintenance and purchase) and data privacy and compliance, indicates that organizations with elevated costs tend to prioritize data privacy and compliance. User Training has a positive correlation with both Network Reliability (0.283) and Stakeholders' Collaboration (0.429). It is noted that organizations investing in user training often prioritize reliable networks and collaborative relationships with stakeholders. Complexity in Usage and Customization and Flexibility of the Systems have a positive correlation (0.717), which implies that organizations grappling with complex system usage may be seeking solutions that offer greater customization and adaptability. These correlations offer valuable insights into the interrelationships among the various challenges in adopting E-procurement and can provide guidance for organizations in effectively addressing these challenges.

3.3 Ways to better leverage E-procurement practices in Private organizations in Singida

In order to examine patterns and trends in the data and identify items with consistently high or low scores to understand which aspects are perceived as more or less in contributing to better leverage E-procurement practices by participants, Table 5 presents data on respondents' thoughts about various strategies for making E-procurement easier to use. The responses are categorized into "Strongly Agree," "Agree," "Disagree," "Strongly Disagree," and "No Comment." Here is an analysis of the data:

Table 5: Ways to better leverage E-procurement practices in Singida’s private sector

Ways to make easy use of E-procurement	Strongly Agree	Agree	Disagree	Strongly Disagree	No Comment
Customization	39.5	19.5	20.0	20.0	0
Creating standard Policy	20	10.0	30.0	40.0	0
Training and support	70	20.0	10.0	0.0	0
Clear documentation	60	20.0	10.0	10.0	0
Integration with existing systems	89	5.0	4.0	2.0	0
User friendly interface	88	12.0	0.0	0.0	0
Multi-language support	60	21.0	10.0	9.0	0
Vendor collaboration	87	10.0	2.0	1.0	0

Usability testing	67	22.0	6.0	5.0	0
Regular communication	26	25	25	24	0

From the data, it is clear that respondents generally believe that training and support, a user-friendly interface, integration with existing systems, and vendor collaboration are key factors in making E-procurement easier to use. On the other hand, there is more contention regarding strategies like creating a standard policy and regular communication.

This finding is also in line with that of Williams-Elegbe, (2018) who stated that private procurement is one area in which corruption manifests because of the sums of money involved; the asymmetry of information; and the bureaucratic nature of decision-making, which presents opportunities for abuse. Training and support, a user-friendly interface, integration with existing systems, vendor collaboration, creating a standard policy and regular communication use, will therefore go a long way in enhancing E-procurement in Singida.

Multiple regression analysis on ways to better leverage E-procurement adoption in the private sector

From Table 6 below, each independent variable is listed along with its coefficient, p-value, and whether it is statistically significant (indicated as "Yes" or "No"). The p-value helps determine if the variable has a significant impact on the dependent variable (Ways to make easy use of internet-based procurement), with a p-value less than 0.05 indicating statistical significance.

Table 6: Multiple regression analysis

Independent Variable	Coefficient	p-value	Statistical Significance
Customization	13.078	< 0.05	Yes
Creating Standard Policy	3.095	> 0.05	No
Training and Support	19.566	< 0.05	Yes
Clear Documentation	13.028	< 0.05	Yes
Integration with Existing Systems	49.309	< 0.05	Yes
User-Friendly Interface	57.269	< 0.05	Yes
Multilanguage Support	15.829	< 0.05	Yes
Vendor Collaboration	44.994	< 0.05	Yes
Usability Testing	14.003	< 0.05	Yes
Regular Communication	0.542	> 0.05	No

The results from multiple regression analysis show that several of the independent variables have statistically significant coefficients, indicating a significant impact on the ease of using internet-based procurement. These

variables include Customization, Training and Support, Clear Documentation, Integration with Existing Systems, User-Friendly Interface, Multilanguage Support, Vendor Collaboration, and Usability Testing. However, Creating Standard Policy and Regular Communication do not have statistically significant coefficients, suggesting that they may not have a significant impact on making E-procurement easier to use in Singida. Generally, this regression analysis identifies the factors that significantly impact the ease of using internet-based procurement, providing valuable insights for organizations looking to improve their procurement processes.

4.0 CONCLUSION AND RECOMMENDATIONS

4.1 Conclusion

Based on the discussion and analysis conducted on the topic of "Exploring Challenges and Adoption Dynamics of E-procurement in Private Organizations in Singida, Tanzania: A Survey-Based Analysis," the following specific conclusions can be drawn;

Factors affecting adoption of e-procurement system: The study has identified several significant factors and challenges that impact the adoption of E-procurement in private organizations in Singida, Tanzania. The highly significant p-values for the cost, geographical spread, financial constraints, and political factors indicate that these are robust and influential factors affecting E-procurement adoption in Singida. Among these, the cost of acquiring and operating E-procurement packages and political factors appear to be particularly prominent, with 24% and 22% of respondents, respectively, highlighting their significance. These findings underscore the need for targeted interventions addressing financial considerations, technological infrastructure, and political support to foster successful E-procurement adoption in Singida.

Challenges in using Internet-Based Procurement: The study has identified several significant factors and challenges that impact the use of E-procurement in private organizations in Singida, Tanzania. These factors and challenges include the cost of acquiring and operating the procurement package being the topmost challenge followed by user training, network reliability and stakeholders' collaboration. For security concerns and data privacy, findings show the same percentage of these two in adopting E-procurement in Singida. Findings also show that while some users in Singida private companies find the E-procurement systems complex, others do not. The study revealed that technology integration and change management are not big challenges that most private companies in Singida face when adopting internet-based procurement.

Pearson correlation analysis: Pearson correlation analysis reveals a strong link between security, data privacy, and compliance: organizations with security concerns prioritize data privacy and compliance. Integration challenges drive demand for customizable systems: when organizations face integration issues, they seek systems that offer customization and flexibility. Also change management associates with higher costs: organizations struggling with change management tend to incur higher expenses. Higher costs correlate with data privacy and compliance emphasis: organizations with elevated costs prioritize data privacy and compliance. User training correlates with network reliability and stakeholder collaboration: organizations investing in user training also focus on reliable networks and collaborating with stakeholders. Complex system usage prompts demand for customization and flexibility: organizations dealing with complex system usage seek adaptable solutions.

Ways to Improve E-procurement Practices: The following strategies could help enhance implementation of E-procurement practices in the private sector in Singida.

Start with comprehensive employee training and support to enable them use ICT tools competently. User friendliness must be enhanced in E-procurement systems through development of good user interfaces. Support smooth introduction of suppliers, and integrate systems where necessary. Promote vendor collaborations to improve the efficacy of E-procurement via the Internet. Think of tailoring your designs for specific tastes and purposes. Enhance trust towards E-procurement systems through addressing security concerns and data privacy.

Regression Analysis Insights: Multiple regression analysis has revealed that various independent variables have a significant effect on the use of internet-based procurement. Customization, training and support, documentation, seamless integration with current systems, intuitive interfaces, multi-language support, vendors' cooperation, and thorough testing on usability while developing uniform standards and consistent communication was said to improve usability but no particular importance on ease of use was observed. The model accounted for 80.3% of variance in perceived ease of using Internet based procurement.

4.2 Recommendations

Based on the conclusions drawn from the study, the following specific recommendations are made for private companies in Singida Region looking to improve their adoption of internet-based procurement.

Private organizations in Singida should invest in Comprehensive Training and Support, and enhance Network Infrastructure. For instance, organizations could partner with network providers like TTCL to enhance infrastructural developments that ensure steady connection particularly when at Singida's remote areas. Collaboration with Stakeholders such as suppliers, procuring entities and regulatory bodies like PPRA must be encouraged. Prioritize Data Privacy and Security and Leverage Technology Integration.

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