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AFFECTORS ON THE HUMANITARIAN SUPPLY CHAIN'S ADOPTION OF ERP SYSTEMS

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Abstract:
Humanitarian organizations faced the issues of supply chain disruption, poor information access, higher costs, late deliveries, delays and inventory management issues which had an impact on the quality services provided by the organizations. These arose because most of the humanitarian supply chain were not using electronic procurement system. The humanitarian SDGs Agenda of 2030, is to "deliver products and/or services to the needy, whose immediate or long term survival can depend on the efficiency execution to enhance cost management." As the purpose of Humanitarian supply chain goal this study aligns with the SDGs goals. The study sought do determine the influence of Tanzania's humanitarian supply chain in the deployment of ERP systems with the primary focus on three variables which were organization capacity, employees training as well as technological infrastructure. The study results exposed that organizational capacity and technological infrastructures had a significant and distinct role in the ERP systems adoption in humanitarian supply chain. Researchers recommended that humanitarian organizations should make significant investment in the Intergra system, provide top-tier assistance and improve the existing training programs for the purpose of enhancing supply chain performance.

Keywords:
Supply chain, Humanitarian supply chain, ERP system, Organization Capacity and IT infrastructures

1. Introduction
The most significant factor affecting the entire functioning of the humanitarian supply chain is the integration of information technology. Smith, Brown & Jones (2018) on their study "Enhance ERP Adoption in humanitarian Organization through training initiatives" showed that even while IT solutions are widely used, there is the existence of knowledge gap on how exactly the technologies affect the usefulness of humanitarian supply chain. The challenges highlight the need to examine the factors influencing the adoption of ERP system and its usefulness in humanitarian supply chain with the focus on training practices, organizational capacity and technological infrastructures in improving supply chain performance.

The embracing of modern technology, such as ERP software, has the potential advantage of maximizing the effectiveness and efficiency of the humanitarian supply chain. How companies and geographical regions will have varied spread problems of adoption for this software that will impact the overall operation of global humanitarian supply chain (Kovacs & Tatham, 2016). While information technology has been employed by supply chains, the pluralized social-economic and African continent's infrastructure context poses distinct challenges for humanitarian supply chain. Adaptation and integration of information technology (IT) solutions are playing a larger and bigger impact on Humanitarian supply chain.

The broad-based utilization of information technology (IT) and infusion of information has enabled IT to become the foundation of modern-day humanitarian supply chain management, transforming organizations' operational approach entirely run and converse with partners around the world. The companies are using IT to enhance several aspects of their humanitarian supply chain activities such as demand forecasting, inventory management, logistical optimization, and relationship management. Thus, the companies are in a position to optimize stakeholder

communications, lower inventories levels, and synchronize their humanitarian supply chain operations. With research, the y-trans-motive role of IT for supply chain performance has been indicated by Li et al. (2019) and Chen et al. (2021), citing the potential that technology has for greater efficiency and saving costs, and respond more rapidly to demand worldwide.

Additionally, (Li, Zhang & Wang, 2019)., IT investment are helpful in African's business to become more competitive by improved inventory management, real-time shipment tracking and improved supplier and customer communication. Supply chain in Tanzania is more powered by information technology amongst East African countries. Mboya et al. (2022) highlighted the significance of improvements in IT infrastructure for logistics sector in Tanzania, focusing on how these investments may minimize stock outs, reduce lead times and improve overall operational performance.

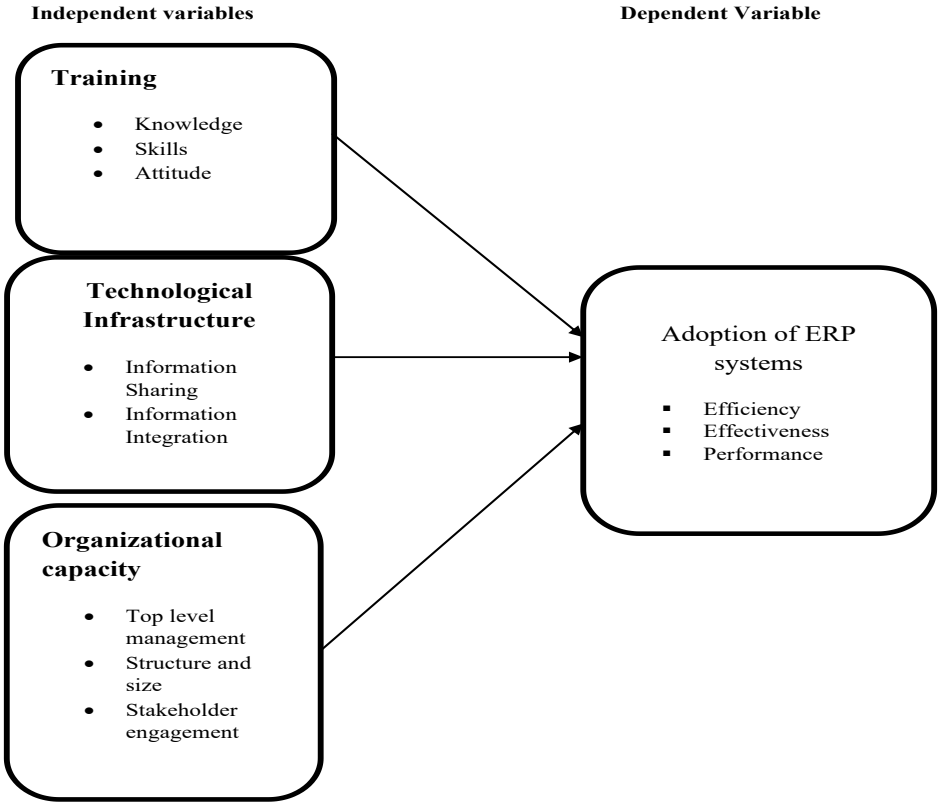
The study employs the Technology, Organization, and Environment (TOE) framework model to investigate the factors influencing the adoption of ERP systems in Humanitarian Supply Chains. The model is based on a theoretical problem and is based on three assumptions. Nevertheless, the study will only take organizational capability, training, and technology infrastructure into account. Hence, TOE framework modal used to encourage the NGOs to implement the technological infrastructure (IT) to automation of humanitarian supply chain based on variables such as organizational capability, training, and technology infrastructure for better procurement and supply chain performance in terms of lead time reduction, lower procurement cost and high-quality sourcing to ensure value for money.

2. Empirical Review

Empirical studies have demonstrated the importance of training in facilitating the adoption and effective utilization of ERP systems. Fore stance the study by Smith et al., (2018) investigated the impact of training programs on the adoption of ERP system in humanitarian organization's finding revealed that comprehensive training initiative significantly enhanced employees understanding and utilization of the ERP systems leading the higher levels of adoption and performance. Also, the study conducted by Kim et al. (2020) explored the influence of technological infrastructure on the adoption of ERP in resource-constrained environment. The study identified reliable internet connectivity and adequate hardware resources as critical enablers for the successful implementation of the integra system in Tanzania humanitarian supply chain.

Additionally, Ngowi & Mwakalinga (2019) examined the influence of organizational capacity on the adoption of ERP systems in Tanzania non-profit organization. Study results in humanitarian supply chain showed that leadership support, employee's engagement and change management strategies are factors significantly influenced the successful integration of the integra system. Furthermore, Brown et al. (2016) revealed that within humanitarian organizations in Tanzania outdated hardware and software system posed a substantial obstacle to the integration of integra ERP system malfunctions. Nevertheless, Thompson et al, (2022) studied in order to improve operational efficiency and performance outcomes, the targeted training initiatives personalized to the specific needs and capabilities of staff members positively enhanced the successful adoption of ERP system in Tanzania humanitarian Supply Chain.

3. Conceptual Model



Source: Researcher (2025)

3.1 Operationalization of Variables

3.1.2 Training and adoption of ERP systems

Thorough training courses intended to improve staff members' proficiency and self-assurance in utilizing the Integra system; pre- and post-implementation questionnaires evaluating staff members' knowledge, abilities, and disposition toward the system; all of which are intended to ensure that employees receive the necessary training in order to promote the system's adoption and use in Tanzania's humanitarian supply chain (Thompson et al., 2020).

3.1.3 Technological infrastructure and adoption of ERP systems

The infrastructure and technological resources currently in place to support the ERP system's implementation and operation are bolstered by assessments of the system's ability to share information and integrate it, as well as assessments of Internet connectivity, power supply dependability, software and hardware compatibility, and the availability of IT support services (Li et al., 2019). Tanzanian supply chains will be able to successfully integrate the ERP system because to the country's strong IT infrastructure.

3.1.4 Organizational capacity and adoption of ERP systems

The key factors that will be measured in this context are the organizational top-level management, leadership support, and the ability to quickly adopt changes that are necessary to effectively implement and sustain the adoption of the system (Kim et al., 2020). Additionally, the size and structure of the organization, as well as the engagement of stakeholders, will be taken into account. These measures offer detailed information about how strong organizational capacity will positively influence the adoption and implementation of the system in Tanzania's humanitarian supply chain.

4. Findings

4.1 Inferential Analysis

4.1.1 Correlation Analysis Matrix

The study employed correlation analysis in order to test the correlation between two variables which are continuous. The correlation coefficient shows the magnitude and direction between the variables of the study. The correlation coefficients vary over a range of +1 through 0 to-0 (D'Souza &Jolliffe, 2017). The summary of the findings obtained through the correlation matrix is revealed in Table 4.1.

Table 4.1 Correlation Analysis Matrix

Statements		Trainings	Technological Infrastructure	Organizational Capacity	Adoption of ERP system
Trainings provision	Pearson Correlation	1			
	Sig. (2-tailed)				
	N	40			
Technological Infrastructure	Pearson Correlation	.658**	1		
	Sig. (2-tailed)	.000			
	N	40	40		
Organizational capacity	Pearson Correlation	.862**	.647**	1	
	Sig. (2-tailed)	.000	.000		
	N	40	40	40	
Adoption of Integra-ERP	Pearson Correlation	.718**	.575**	.905**	1
	Sig. (2-tailed)	.000	.000	.000	
	N	40	40	40	40

**. Correlation is significant at the 0.01 level (2-tailed).

The outcome indicates that there is a positive correlation between Training practices and the performance of the ERP System in supply chain performance which indicated that a unit increase in training practices in the organisation will lead to successful adoption process of the System in its performance in supply chain. Hence, the correlation between this variable was (r=0.718, p-value=0.000). Also, the answers show that there is a positive correlation between technological infrastructure and the successful adoption process of the System on its performance in supply chain performance, this relationship has indicated that whenever there is an improvement in technological infrastructure there will also be an improvement in the performance of System within the supply chain whereby (r=0.575, p-value 0.000).

Based on the findings as shown in table 4.1 above the study indicates that there is a positive relationship between organisational capacity and the successful adoption process of the System on its performance in supply chain practises. However, it was either revealed that an increased unit in organisation processes within the organisation and to trading partners will lead to an increase in adoption process. The correlation between these two variables was (r=0.905, p-value = 0.000).

Moreover, based on the findings indicated in Table 4.1 above revealed that there was a correlation between ERPsystem and supply chain performance, from the finding of the study revealed that there is a positive correlation between the system and performance of supply chain, this also showed that the increase in the level of adoption of the integrated system will eventually lead to an increase in the level supply chain performance, the correlation between ERP system and performance of supply chain.

4.1.2 Regression of the Variables

Based on this study regression model was used to establish the relationship between dependent and independent variables. The analysis of regression analysis is indicated from table 4.2 (Model summary table), table 4.3 (ANOVA table), and table 4.4 (Regression coefficient Table) as shown below;

Table 4.2 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.948[a]	.899	.891	.28427

a. Predictors: (Constant), S400, S200, S300

Table 4.2 provides R, R2, adjusted R2, and the standard error of the estimate. R which is 0.948 is used to measure the quality of the prediction of the dependent variable. "R Square" which is 0.899 (89.9%) described the extent to which dependent variables explain independent variables by the independent variables. While about 10.1% is the extent to which dependent variables fail to explain independent variables. Moreover, Adjusted R Square which is 0.891 (89.1%) indicates the extent that independent variables affect the dependent variables. Also, the standard error which is 0.284 illustrates how wrong one could be if he or she used the regression model to make predictions.

Table 4.3 Analysis of Variance (ANOVA)

Model		Sum of Squares	Df	Mean Square	F	Sig.
	Regression	25.935	3	8.645	106.982	.000[b]
	Residual	2.909	36	.081		
	Total	28.844	39			

a. Dependent Variable: S500

b. Predictors: (Constant), S400, S200, S300

Based on the findings shown in the table above indicates that the model can be used to generalize since the p-value is less than 5% (0.000) which is significant. F-ratio which is 106.982 indicates how the model is good for data analysis. Therefore, the model is good for data analysis as F= 106.982>1.4325, p-value (.000) <.05 therefore the regression model is a good fit for the data. Also, the results presented in table 4.4 below point out the independent variables with unique contribution and significance towards dependent variable under the column of standardized coefficient;

Table 4.4 Regression Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-.113	.269		-.419	.678
Trainings practice	-.191	.096	-.207	-1.981	.055
Technological Infrastructure	.602	.124	.519	4.837	.000
Organizational Capacity	.620	.141	.632	4.395	.000

a. Dependent Variable: Adoption of ERP systems

The findings indicate that training practices p-value (.000) <0.05, technological infrastructure p-value (.000) <0.05, organisation capacity (.000) <0. This implies that all predictor variables are useful in the model. Also, the findings from Table 4.14 above, the established regression model equation becomes; Y (public procurement performance) =0.191(trainings practices) X1+ 0.602 (technological infrastructure) X2 + 0.620(organisation capacity). From the equation constant -.113 is the predicted value for the dependent variable (Adoption of ERP system).

Moreover, unstandardized coefficients used to construct the equation from table 4.4 precise how much the dependent variable varies with an independent variable when all other independent variables are held constant. Therefore, a unit change in trainings practice, held constant led to a positively change in System performance by 0.191, a unit change in technological infrastructure held other aspects constant led to a positively change in system performance by 0.602, a unit change in organisation capacity held constant other variables led to a positively change in system performance by 0.620.

In addition to that standardized coefficient were used in measuring variables with their unique contributions towards the dependent variable where the analysis was taken at a 5% significance level or probability value or p-value which was the criteria of comparing significant variables. And the independent variables which had less than a p-value of 5% were considered to be statistically significant and were the ones that had a unique contribution to the dependent variable. This implied that organisation capacity had the highest contribution on System adoption by 24%, Technological infrastructure which had a contribution on system adoption performance by 24%, followed by trainings practices which had a contribution on the performance of the system by 8%.

5. Discussion

5.1 Training on the adoption of ERP system in humanitarian supply chain

The study's conclusions showed that trainings can address the obstacles to system adoption by enhancing knowledge and technical proficiency as well as changing attitudes and negative perceptions of the system. As a result, the organization must consider trainings in a way to enhance adoption process and increase the efficiency and effectiveness of supply chain activities for humanitarian organizations. The findings match with the study by Smith and colleagues (2018), which confirmed that an extensive training program significantly improved staff members' comprehension and application of ERP systems, which result in increased adoption and productivity.

5.2 Technological Infrastructure versus ERP system adoption in humanitarian supply chain

The study revealed that organization with adequate and capable technological infrastructures can improve the operation and implementation of the system. These infrastructures include the use of updated hardware, limited network capabilities and insufficient software. The adoption challenges can be reduced by those factors and increase the efficiency and effectiveness of the ERP system for supply chain performance. Furthermore, other infrastructures related factors include development of security policies, the adoption of mobile application technologies on phones for emergencies, especially in inaccessible areas and infrastructure assessment.

Advanced technology to help enable information exchange and data consolidation across the supply chain, cloud-based infrastructure, mobile technologies and security technologies should be integrated. These technologies enable stakeholders to make educated decisions and respond promptly to shifts in the supply or demand, increasing the efficiency and coordination of activities. These findings are aligned with those of Kim et al. (2020), who argued that adequate hardware infrastructures and reliable internet connectivity were key drivers of the proper integration of the integra system in Tanzania's humanitarian supply chain.

5.3 Organizational capacity versus adoption of ERP system in humanitarian supply chain.

The study found that the organization had the human capital, expertise, and resources necessary to fully utilize ERP. On the other hand, the organization's capacity was crucial in facilitating the adoption process by resolving many of the system's adoption-related issues. To facilitate the adoption process, the organization should also make sure that it has improved change management capabilities and a small enough organizational structure to support information integration, which will allow for the collection and aggregation of data from a variety of sources, including internal systems, external databases, and third-party sources that offer a comprehensive view of potential risk across the organization. The results are consistent with a study conducted by Ngowi and Mwakalinga (2019), which found that the successful integration of the Integra system in humanitarian supply chains was highly influenced by elements including employee engagement, change management techniques, and leadership support.

6. Conclusion and Recommendation

6.1 Conclusion

The study results presented that technological infrastructure, organizational capability and trainings all had an impact on how well ERP system performed in supply chain for humanitarian aid. The study concluded that organizational capacity, technological infrastructures and trainings all directly affect supply chain performance.

6.2 Recommendations

6.2.1 Trainings

The successful training programs are required for the assurance of ERP system competence of the staff members. Without appropriate training, it may lead to improper utilization of the system functionalities and potential inability to produce the desired outcomes. Staff members should also be provided continuous training and support for enhanced competence and confidence while utilizing the ERP system.

6.2.2 Technological infrastructure

The initial prerequisite of the successful roll-out of ERP systems present real challenges for organizations that possess poor infrastructure both in network, software, and hardware infrastructure. The conclusion is that in a quest to help ease the adoption of the system and its operation, technology infrastructure needs to be improved.

6.2.3 Organizational Capacity

This includes the human, managerial and financial resources that are involved in adoption procedures. The organizations with higher capacity are mostly equipped to handle all initial and continuous maintenance costs which associated with ERP system. This study highlighted how important it is for the organization to evaluate, assess and improve its internal capacity for the aim of facilitating the deployment and long-term viability of ERP systems.

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