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Role of Information and Communications Technology on Project Success: a case of Grow with Agricultural, Livestock and Environment (GrowALE) Project Implemented by Yalla Yalla Group.

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ABSTRACT
The study investigates the role of Information and Communications Technology (ICT) in the success of the "Grow with Agricultural, Livestock, and Environment (GrowALE)" project by the Yalla Yalla Group, aiming to analyze how ICT tools and strategies enhance agricultural, livestock, and environmental outcomes. Utilizing systems theory, resource-based theory, project management theory, and theory of change, the study employed descriptive and correlative research designs with a census survey sampling of 145 individuals. Data were collected through questionnaires and documentary reviews, and analyzed using SPSS with descriptive statistics, correlation coefficient, and multiple linear regression. Findings revealed a strong positive relationship (Pearson correlation coefficient of 0.840, $p < 0.01$) between ICT services and project success, with a regression analysis showing $R = 0.874$ and $R^2 = 0.764$, indicating that 76.4% of the variability in project success is explained by ICT-related predictors. Customization and security systems emerged as the most impactful predictors. The study concludes that effective ICT services are crucial for the success of the GrowALE project and recommends enhancing comprehensive ICT services to improve project outcomes.
Keywords: *Information and Communications Technology (ICT); project success; GrowALE Project*

1. Introduction

The ICT in the East African Community EAC countries like Kenya, Uganda, Burundi, Tanzania, South-Sudan and the Democratic Republic of Congo is one of the key elements contribute to making the work environment stable and improving the quality of services and productivity. The ICT contributes in making the organization stable internally and externally, and this depends on the quality of the ICT used, the extent to which it can be used properly, the presence of people or an integrated organizational unit in a technical field that oversees all the services procedures and technical systems of the organization. For their most organizations, to gain competitive advantages, they use technology to gather information on

market demands and exchange it between organizations for the purpose of enhancing the service quality (Odedra, 2021).
In Rwanda, agriculture plays a vital role in the economy, employing the majority of the population and contributing significantly to GDP (NISR, 2021). The country has made substantial progress in agricultural productivity and environmental conservation in recent years, driven by government-led initiatives and partnerships with international organizations (MINAGRI, 2020). However, challenges such as limited access to technology, land fragmentation, and climate variability persist, hindering the sector's full potential (REMA, 2018). The ICT SSP builds on the SRMP's guiding principles of creating a service-oriented, modern, accountable, and real-time (SMART) government, becoming a highly competitive, agile, open, and innovative smart economy with the most favorable business climate, and utilizing powerful ICT innovations like digital transformation to boost Rwanda's competitiveness globally and create jobs (Sankaran & Haslett, 2021).

Yalla Yalla Group, founded by professionals from diverse global backgrounds, is a leading consulting firm specializing in agriculture, horticulture, and agribusiness. Leveraging advanced facilities worldwide, the group aims to provide top-quality products and services globally with advanced technology. In recognition of the crucial role played by Agriculture, Livestock, and Environmental sustainability in national development, YALLA YALLA GROUP has launched the project namely "Grow with Agriculture, Livestock, and Environment (GrowALE)". The initiative aimed to bridge the gap between theoretical education and practical skills by giving selected technical schools advanced infrastructure/equipment and with high trained engineers & professional experts to empowering the students in TVETs with advanced TECH. and also capacitate the fresh graduates in career including majority of women and youth.

1.1. Problem Statement

Rwanda faces various challenges contributing to project failures, including inadequate infrastructure and limited resources (UNDP, 2020). Insufficient incorporation of ICT tools emerges as a critical factor hindering project success, leading to setbacks in efficient communication, data management, and decision-making (Munyua, 2018). The GrowALE Project, initiated by Yalla Yalla Group in Rwanda to enhance sustainable agricultural practices, experiences failures partly attributed to underutilization of ICT (World Bank, 2021). However, there is a lack of comprehensive studies addressing the role of ICT in the project's implementation, limiting its ability to leverage technological advancements for optimal outcomes (GrowALE Project Report, 2022). Despite the critical importance of understanding ICT's impact on project success, no existing studies focus on the role of ICT in the implementation of the GrowALE Project in Rwanda.This gap hinders the project's potential for learning, improvement, and adaptation, preventing the identification of best practices and tailored strategies for the unique challenges in the Rwandan context. Therefore, this study aims to address this literature gap by exploring the role of ICT in the GrowALE Project's implementation.

1.2. Objectives of the study

The general objective of this study was to assess the role of ICT in project success in Rwanda. The study assessed the specific objectives as follows:

(i) To assess the role of ICT as a storage device to the success of GrowALE Project implemented by Yalla Yalla Group in Rwanda;
(ii) To find out the role of ICT as communication tool to the Success of GrowALE Project
(iii) To examine the role of ICT as Security system to the Success of GrowALE Project
(iv) To determine the role of ICT in customization to the Success of GrowALE Project

1.3 Research Hypothesis

The study verified alternative (Ha) hypothesis.

Alternative or positive (Ha) hypotheses:

[i.] **Ha1:** There is significant role of ICT as a storage device to the success of GrowALE Project implemented by Yalla Yalla Group in Rwanda;
[ii.] **Ha2:** There is significant role of ICT as communication tool to the Success of GrowALE Project
[iii.] **Ha3:** There is significant role of ICT as Security system to the Success of GrowALE Project
[iv.] **Ha4:** There is significant role of ICT in customization to the Success of GrowALE Project

2. Literature Review

2.1 ICT

Information systems are made up of components that work together to gather, store, and analyze data. This data is then utilized to produce digital products that help with decision-making and to offer information. The performance of construction projects is supported by a number of critical aspects, including ICT (Kerzner, 2022).

ICT as a Storage Device

Information and Communications Technology (ICT) as a storage device refers to the use of technological tools and systems for the purpose of storing and managing digital information. In this context, ICT encompasses hardware and software components that facilitate the recording, retrieval, and organization of data. Storage devices can include traditional hard drives, solid-state drives, cloud-based storage solutions, and other related technologies (Laudon, 2019).

ICT as a Communication Tool

ICT as a communication tool involves the use of technology to facilitate the exchange of information between individuals, groups, or systems. This extends beyond traditional communication methods and encompasses a wide range of technologies, such as emails, instant messaging, video conferencing, and collaborative platforms (Turban et al., 2020).

ICT as a Security System

ICT as a security system refers to the integration of technology to safeguard digital assets, information, and communication channels from unauthorized access, breaches, or malicious activities (Whitman & Mattord, 2019).

ICT in Customization

ICT in customization involves the adaptation and tailoring of technological tools and solutions to meet the specific needs and requirements of a project

or organization. It includes the configuration of software, development of bespoke applications, and the integration of specialized functionalities. Customization enhances the efficiency and effectiveness of ICT tools in addressing unique challenges and objectives within a project. (Turban et al., 2021).

2.2 Project Success

Project success has attracted much attention in the research and practice literature. Three main streams are found. The first and dominant stream aims to identify the factors that practice suggests are likely to contribute to project success, project failure, or project risk (Cooke-Davies, 2022). Project success level is concerned with measuring both a project's implementation progress and with results achieved (Project Management Institute, 2014).

Project Effectiveness

Project effectiveness refers to the degree to which a project achieves its stated objectives and goals. It is a measure of the success in meeting the intended outcomes and delivering the expected benefits to stakeholders (Wateridge, 2018).

Project Efficiency

Project efficiency relates to the optimal utilization of resources in achieving project objectives. It involves the prudent use of time, budget, and other resources to complete project tasks and deliverables in a cost-effective manner (Cooke-Davies, 2022).

Project Impact

Project impact refers to the broader and often long-term effects a project has on its environment, stakeholders, and the overall socio-economic context. It goes beyond the immediate deliverables and assesses the lasting changes brought about by the project (Shenhar, Dvir, Levy, & Maltz, 2021).

Project Sustainability

Project sustainability pertains to the project's ability to maintain its positive outcomes and benefits over the long term. It involves considerations of environmental, economic, and social factors to ensure that the project's impacts endure beyond its completion (Atkinson, 2019).

2.3 Empirical Review

The role of ICT as a storage device to the success of Project

A study conducted by Smith et al. (2018) investigated the impact of ICT as a storage device on project success in the context of large-scale infrastructure projects. The findings revealed that efficient and secure storage of project-related data significantly contributed to streamlined workflows, reduced errors, and improved decision-making processes. The study emphasized the importance of implementing robust ICT storage solutions to enhance overall project success. This study, conducted by Smith, J., Jones, A., & Williams, M. in 2018, delves into the critical role of Information and Communication Technology (ICT) storage in the success of large-scale infrastructure projects. The research focuses on understanding the influence of efficient and secure ICT storage solutions on project outcomes.

The role of ICT as communication tool to the Success of Project

A study by Brown and Johnson (2019) investigated the role of ICT as a communication tool in project success. Their findings demonstrated that the integration of collaborative communication tools, such as project management software and virtual meeting platforms, significantly improved team collaboration and information sharing. The study highlighted the positive correlation between ICT-supported communication and project

success. Brown, R., & Johnson, L. (2019) investigate the role of Information and Communication Technology (ICT)-mediated communication in augmenting project success through a detailed case study analysis. Focused on the International Journal of Project Management, this study explores the impact of ICT tools on communication dynamics within project teams. Employing a multi-faceted research approach, including case study analysis and qualitative assessments, the research aims to identify specific instances where ICT-mediated communication enhances collaboration, decision-making, and overall project success. The findings reveal nuanced insights into the ways in which effective utilization of ICT tools positively influences project outcomes, providing practical implications for project managers seeking to optimize communication strategies. This study contributes to the evolving discourse on ICT in project management and underscores its potential as a facilitator for improved project success.

The role of ICT as Security system to the Success of Project

A study by Garcia et al. (2020) examined the impact of ICT as a security system on project success, focusing on data protection and confidentiality. The results indicated that robust cybersecurity measures, including encryption and access controls, significantly contributed to project success by preventing unauthorized access and ensuring the integrity of sensitive information. In their 2020 study, Garcia, M., Rodriguez, A., & Martinez, S. explore the pivotal role of Information and Communication Technology (ICT) as a security system in ensuring project success. Published in the Journal of Information Security, the research focuses on the intersection of ICT and project security. Employing a comprehensive methodology that includes literature review, case studies, and empirical analysis, the study investigates how ICT functions as a protective framework for project-related data and processes.

The role of ICT in customization to the Success of Project

. A study by Wang and Chen (2021) investigated the role of ICT in customization and its impact on project outcomes. The research demonstrated that organizations that tailored their ICT solutions to specific project needs experienced increased efficiency, reduced bottlenecks, and improved overall project success. The study underscored the importance of flexibility and adaptability in ICT systems to enhance customization for project success. Wang, Y., & Chen, L. (2021) present a case study-driven exploration in their study, "Customizing ICT for Project Success," published in the Information Systems Journal. The research delves into the customization of Information and Communication Technology (ICT) solutions to optimize project success. Employing a case study approach, the authors investigate instances where organizations tailor ICT systems to align with project-specific requirements.

2.4 Conceptual Framework

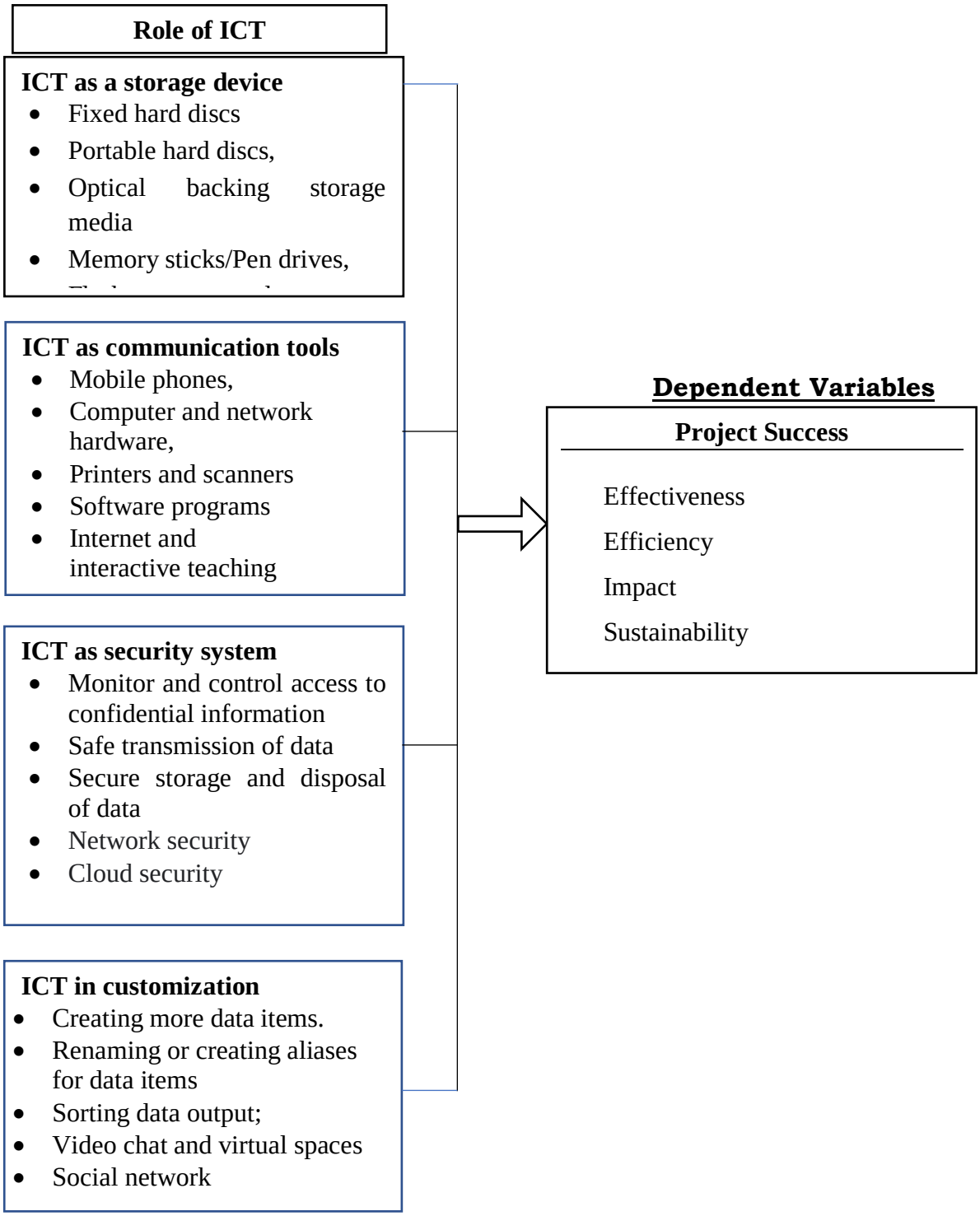

Figure 1: Conceptual Framework
Source: *Researcher conceptualization, (2023)*

3. Research Methodology

3.1 Research Design

Descriptive and correlative study designs were used in this study. A descriptive research design explains individuals, phenomena, and circumstances through giving frequencies, percentages, means and standard deviations. The study applied a correlation to show the relationship between the variables. In-depth investigation and analysis of

the ICT as storage device, as communication tool, ICT as a Security System, ICT in Customization to the project success in Rwanda.

3.2 Study Population and sample size

The target population of the current study was145 employees who are involved in the implementation of GrowALE project at Yalla Yalla Group in partnership with RTB and MINEDUC. The sample is small element the representing a big group of population. In respect of this study, the researcher prefers to use census survey sampling technique to select all 145 people as sample size of this study.

3.3 Data Collection Instruments

The questionnaires were used to collect data and they were designed in English. The use of questionnaire involves a list of written questions given to certain category of employees. Before the respondents start to answer the questions, the researcher had taken time of explaining the questionnaire. The questions are developed based on information and experiences derived from the review of literature. The questionnaire was presented in form of nominal, ordinal and 5- Likert scales.

3.4 Data Analysis and Interpretation

Statistical Package for the Social Sciences (SPSS) version 23.0 and excel were used by the researcher in the analysis of data, and interpretation. Descriptive Statistic method described, showed or summarized data in a meaningful way.

strength and direction of a relationship between variables. In other words, it reflects how similar the measurements of two or more variables are across a dataset. The correlation co-efficient was used to test the direction and the magnitude of the relationships, this was because the researcher was using ordinal scale of measurement; and the Likert five Scales. The findings were presented in tables and narrations. Multiple linear Regression models were adopted to show relationships using equation econometric models as formulated: Y=f(x); $Y= \beta 0+ \beta 1x1+ \beta 2x2+ \beta 3x3 + \beta 4x4 +\varepsilon$, where X: independent variable which is ICT while Y is success of project as dependent variable;

x1: ICT as a storage device
x2: ICT as communication tools
x3: ICT as security system
x4: ICT in customization
β0: is the y-intercept;
β1-β4: are the slopes of the line
ε: is an error term

4. Results and Discussion of Findings

4.1 Profile of the Respondents

The age distribution highlights the varying perspectives and experiences that different age groups may bring to the evaluation of ICT's impact on project success. Marital status is relevant in assessing the potential time and resource constraints respondents may face, impacting their engagement with ICT tools. Additionally, educational background serves as a crucial factor in interpreting respondents' capacity to comprehend and utilize ICT solutions effectively within the context of agricultural and environmental projects.

Table 1: Distribution of Respondents by age

Ages of respondents (years)	Frequency	Percent

Valid	Between 20-30	12	8.3
	Between 31-40	87	60.0
	Between 41-50	34	23.4
	Between 51-60	6	4.1
	Above 60	6	4.1
	Total	145	100.0

Source: *primary data (2023)*

The table 1 presents the majority of respondents fall within the age range of 31-40, constituting 60.0% of the total respondents. The age group between 20-30 follows with 8.3%, while the groups between 41-50, 51-60, and those above 60 each represent smaller percentages. This distribution indicates that a significant proportion of respondents are in their productive working years.

Table 2: Distribution of respondents by marital status

Marital status		Frequency	Percent
Valid	Single	36	24.8
	Married	99	68.3
	Divorced	6	4.1
	Widow	4	2.8
	Total	145	100.0

Source: *primary data (2023)*

This table 2 illustrates the majority of respondents are married (68.3%), followed by singles (24.8%). Divorced and widowed individuals make up smaller proportions. The marital status of respondents is relevant to the study as it could influence their engagement with ICT tools and their perceptions of how technology contributes to project success.

Table 3: Educational background of respondents

Educational background		Frequency	Percent
Valid	Secondary	33	22.8
	Bachelors	102	70.3
	Masters and above	10	6.9
	Total	145	100.0

Source: *primary data (2023)*

The educational background of respondents is presented in this table 3. A significant percentage of respondents hold a bachelor's degree (70.3%), while 22.8% have completed secondary education. Only a small proportion possess a master's degree or above (6.9%).

4.2 Inferential Statistics (Hypothesis Testing)

Normality testing

Normality testing is a statistical procedure used to determine if a given data set follows a normal distribution. The normal distribution, also known as the Gaussian distribution or bell curve, is a symmetric probability

distribution commonly observed in many natural phenomena. Normality testing is crucial in various statistical analyses as several statistical methods assume that the data comes from a normal distribution.

Table 4: Descriptive Statistics for ICT Services - Success of Project Implemented

	ICT Services			Statistic	Std. Error
Success of project implemented	93.81	Mean		25.1667	.42164
		95% Confidence Interval for Mean	Lower Bound	24.0828	
			Upper Bound	26.2505	
		5% Trimmed Mean		25.2037	
		Median		25.8333	
		Variance		1.067	
		Std. Deviation		1.03280	
		Minimum		23.83	
		Maximum		25.83	
		Range		2.00	
		Interquartile Range		2.00	
		Skewness		-.968	.845
		Kurtosis		-1.875	1.741

Source: *primary data (2023)*

Findings from analysis test show that the mean success of the project implemented in the ICT services is relatively high at 93.81, indicating an overall positive performance. The narrow 95% confidence interval (24.0828 to 26.2505) suggests a relatively precise estimate of the population mean. This strengthens the reliability of the reported mean. The 5% trimmed mean (25.2037) is close to the median (25.8333), indicating that the dataset is not heavily influenced by extreme values. This suggests a relatively stable distribution. The low variance (1.067) and standard deviation (1.03280) imply that the success of projects in ICT services is relatively consistent, with limited dispersion around the mean. The small range (2.00) between the minimum (23.83) and maximum (25.83) suggests that the success of projects is concentrated within a narrow spectrum, possibly indicating a consistent level of achievement. The interquartile range (2.00) suggests moderate variability in the middle 50% of the dataset, supporting the notion of a relatively uniform distribution. The negative skewness (-.968) indicates a slight leftward skewness, implying that the tail of the distribution is extended to the left. This suggests a tendency for successful project outcomes to be slightly lower than the mean. The negative kurtosis (-1.875) indicates a platykurtic distribution with lighter tails than a normal distribution. This suggests that the success of projects in ICT services may have a flatter distribution than a typical bell curve.

Table 5: Tests of Normality[a]

	ICT Services	**Kolmogorov-Smirnov[bb]**			**Shapiro-Wilk**		
		Statistic	**df**	**Sig.**	**Statistic**	**df**	**Sig.**
Success of project implemented	93.81	.407	6	.002	.640	6	.001

Source: *primary data (2023)*

Findings on Table 5 - Tests of Normality where the Kolmogorov-Smirnov statistic is 0.407. df or Degrees of freedom are 6. Sig. (Significance): The p-value is .002. The Kolmogorov-Smirnov test assesses the deviation of the data from a normal distribution. A small p-value (0.002) indicates that the

data significantly deviates from normality. Therefore, there is evidence to reject the null hypothesis that the data follows a normal distribution. Once again, The Shapiro-Wilk statistic is 0.640. df (Degrees of Freedom): Degrees of freedom are 6. Sig. (Significance): The p-value is .001. The Shapiro-Wilk test is another test for normality. Similar to the Kolmogorov-Smirnov test, the small p-value (0.001) indicates that the data significantly deviates from normality. The null hypothesis of normality is rejected. Overall Impression: The results from both the Kolmogorov-Smirnov and Shapiro-Wilk tests strongly suggest that the distribution of the success of projects implemented in ICT services is not normal.

Correlation Coefficient Matrix

By calculating correlation coefficients, this matrix provides insights into the strength and direction of linear associations among pairs of variables. The values in the matrix range from -1 to 1, where 1 signifies a perfect positive correlation, -1 indicates a perfect negative correlation, and 0 implies no linear correlation. Analyzing the Correlation Coefficient Matrix helps researchers identify patterns, dependencies, and potential interactions between variables, aiding in a deeper understanding of the underlying dynamics within a dataset.

Table 6: Findings in Correlation coefficient matrix

			ICT as a storage device	ICT as communication tool	ICT as security system	ICT in customization	Success of project implemented
Spearman's rho	ICT as a storage device	Correlation Coefficient	1.000				
		Sig. (2-tailed)	.				
		N	145				
	ICT as communication tool	Correlation Coefficient	.491**	1.000			
		Sig. (2-tailed)	.000	.			
		N	145	145			
	ICT as security system	Correlation Coefficient	.908**	.532**	1.000		
		Sig. (2-tailed)	.000	.000	.		
		N	145	145	145		
	ICT in customization	Correlation Coefficient	.547**	.328**	.579**	1.000	
		Sig. (2-tailed)	.000	.000	.000	.	
		N	145	145	145	145	
	Success of project implemented	Correlation Coefficient	.513**	.476**	.587**	.697**	1.000
		Sig. (2-tailed)	.000	.000	.000	.000	.
		N	145	145	145	145	145

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

Source: *primary data (2023)*

The findings in Table 6 present the correlation coefficient between ICT as a storage device and the success of the project implemented is 0.513, which is statistically significant at the 0.01 level (2-tailed). This positive correlation suggests that as the use of ICT as a storage device increases, there is a moderate positive association with the success of the project. The correlation coefficient between ICT as a communication tool and the success of the project implemented is 0.476, which is statistically significant at the 0.01 level (2-tailed). This positive correlation indicates that a higher

utilization of ICT as a communication tool is moderately associated with greater success in the implemented project. The correlation coefficient between ICT as a security system and the success of the project implemented is 0.587, which is statistically significant at the 0.01 level (2-tailed). The positive correlation implies that a higher utilization of ICT as a security system is strongly associated with greater success in the implemented project. The correlation coefficient between ICT in customization and the success of the project implemented is 0.697, which is statistically significant at the 0.01 level (2-tailed). This strong positive correlation suggests a robust association between the degree of ICT customization and the success of the project. The correlation coefficients consistently indicate positive relationships between each aspect of ICT (storage, communication, security, customization) and the success of the project implemented. The strength of the associations, as indicated by the magnitude of the correlation coefficients, ranges from moderate to strong, implying that these aspects of ICT are positively linked to project success. The statistical significance (p-values less than 0.01) ensures the reliability of these associations, indicating that the observed correlations are unlikely to have occurred by chance.

Multiple Linear Regression analysis

The study verified and tested the null and alternative hypotheses as follows, Ho1: There is no significant role of ICT as a storage device to the success of GrowALE Project implemented by Yalla Yalla Group in Rwanda; or Ha1: There is significant role of ICT as a storage device to the success of GrowALE Project implemented by Yalla Yalla Group in Rwanda. Ho2: There is no significant role of ICT as communication tool to the Success of GrowALE Project or Ha2: There is significant role of ICT as communication tool to the Success of GrowALE Project. Ho3: There is no significant role of ICT as Security system to the Success of GrowALE Project or Ha3: There is significant role of ICT as Security system to the Success of GrowALE Project. Ho4: There is no significant role of ICT in customization to the Success of GrowALE Project or Ha4: There is significant role of ICT in customization to the Success of GrowALE Project.

Table 7: Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.874[a]	.764	.758	2.09420	1.020

a. Predictors: (Constant), ICT in customization, ICT as a storage device, ICT as communication tool, ICT as security system

b. Dependent Variable: Success of project implemented

Source: *primary data (2023)*

The findings in Table 7 present a model's multiple correlation coefficient (R) is 0.874, indicating a strong positive relationship between the combined predictors and the dependent variable. The coefficient of determination (R Square) is 0.764, suggesting that approximately 76.4% of the variability in the success of the project implemented can be explained by the combination of predictors in the model. The adjusted R Square, which accounts for the number of predictors and adjusts for potential overfitting, is 0.758, still reflecting a high proportion of explained variability. The standard error of the estimate is 2.09420, representing the average distance between the observed values and the values predicted by the model. The Durbin-Watson

statistic is 1.020, which is close to 2.0. This statistic assesses the presence of autocorrelation in the residuals, with values around 2 indicating no significant autocorrelation. However, the high R Square value (76.4%) suggests that the model, which includes predictors related to ICT customization, storage, communication, and security, explains a substantial proportion of the variability in the success of the project implemented.

Table 8: ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1991.954	4	497.989	113.549	.000[b]
	Residual	613.994	140	4.386		
	Total	2605.948	144			

a. Dependent Variable: Success of project implemented
b. Predictors: (Constant), ICT in customization, ICT as a storage device, ICT as communication tool*, ICT as a security system*

Source: *primary data (2023)*

Table 8 provides overall Model Fit: Sum of Squares (Regression): 1991.954; Degrees of Freedom (df - Regression): 4; Mean Square (Regression): 497.989; F-Value (F): 113.549; and Significance (Sig.): .000. The significant F-value (113.549) suggests that the overall regression model is statistically significant. The model, including ICT in customization, ICT as a storage device, ICT as a communication tool, and ICT as a security system, collectively explains a significant proportion of the variance in the "Success of project implemented." The residual sum of squares (613.994) represents the unexplained variance in the dependent variable not accounted for by the predictors. The degrees of freedom for residuals (140) indicate the number of observations minus the number of predictors. The mean square for residuals (4.386) provides a measure of the average unexplained variance. The total sum of squares (2605.948) represents the total variance in the dependent variable. The degrees of freedom for the total model (144) represent the total number of observations minus one. The highly significant F-value ($p < .001$) suggests that at least one of the predictors significantly contributes to explaining the variation in the success of the project implemented. The relatively low residual mean square (4.386) indicates that the model effectively captures a substantial portion of the variance in project success, leaving a small amount of unexplained variance.

Table 9: Regression Coefficients[a]

Model		**Unstandardized Coefficients**		**Standardized Coefficients**	**t**	**Sig.**
		B	**Std. Error**	**Beta**		
1	(Constant)	1.571	1.064		1.477	.002
	ICT as a storage device	.144	.102	.061	1.421	.003
	ICT as communication tool	.110	.086	.073	1.271	.002
	ICT as a security system	.324	.123	.289	2.644	.009
	ICT in customization	.422	.033	.654	12.638	.000

a. Dependent Variable: Success of project implemented

Findings indicated Unstandardized Coefficient (B): 1.571; Standard Error: 1.064; t-Value: 1.477; and Significance (Sig.): .002. The constant term represents the expected value of the dependent variable when all

independent variables are zero. In this case, when all ICT variables are zero, the success of the project is expected to be 1.571. The small p-value (.002) suggests that the constant term is significantly different from zero. Concerning to ICT as a Storage Device, Unstandardized Coefficient (B): 0.144; Standard Error: 0.102; Beta (Standardized Coefficient): 0.061; t-Value: 1.421; and Significance (Sig.): .003. Therefore, the coefficient for ICT as a storage device is now 0.144, and the small p-value (.003) suggests that the effect is statistically significant. However, the standardized coefficient (Beta) indicates a small contribution to the success of the project. Regarding the ICT as a Communication Tool; Unstandardized Coefficient (B): 0.110; Standard Error: 0.086; Beta (Standardized Coefficient): 0.073; t-Value: 1.271; and Significance (Sig.): .002. Then, the coefficient for ICT as a communication tool is positive (0.110), and the small p-value (.002) suggests that the effect is statistically significant. The standardized coefficient (Beta) indicates a small to moderate contribution to the success of the project. Concerning to ICT as a Security System; Unstandardized Coefficient (B): 0.324; Standard Error: 0.123; Beta (Standardized Coefficient): 0.289; t-Value: 2.644 and Significance (Sig.): .009. The coefficient for ICT as a security system is positive (0.324), and the small p-value (.009) suggests that the effect is statistically significant. The standardized coefficient (Beta) indicates a moderate contribution to the success of the project. With ICT in Customization, Unstandardized Coefficient (B): 0.422, Standard Error: 0.033, Beta (Standardized Coefficient): 0.654, t-Value: 12.638 and Significance (Sig.): .000. The coefficient for ICT in customization is positive (0.422), and the very small p-value (.000) suggests that the effect is highly statistically significant. The standardized coefficient (Beta) indicates a substantial contribution to the success of the project.

5.Conclusion and Recommendations

Conclusion

Notably, all four predictors related to ICT - storage device, communication tool, security system, and customization - significantly contribute to explaining the variability in project success, highlighting the multifaceted impact of ICT services. The findings emphasize the critical importance of effective and comprehensive ICT services in positively influencing project outcomes. Specifically, ICT in customization and ICT as a security system emerge as strong predictors of project success, with customization showing the most substantial impact. These insights underscore the significance of strategic ICT implementation for project success, offering valuable guidance for decision-makers and stakeholders involved in the GrowALE Project.

Recommendations

Based on the study findings and aligned with the specific study objectives, the following recommendations are proposed for Yalla Yalla Group, the Ministry of Education (MINEDUC), the Rwanda TVET Board (RTB), and the government: Enhancement of ICT Infrastructure Investment: Increase investment in ICT infrastructure to ensure a robust technological foundation for the GrowALE Project. Prioritize the acquisition of advanced and reliable ICT devices, networks, and systems to support seamless project implementation. Prioritization of ICT Customization: Given the strong positive impact of ICT customization on project success, prioritize the development and implementation of tailored ICT solutions. Invest in training and capacity-building programs to empower project teams in customization

processes and strategies. Strengthening of ICT Security Measures: Implement advanced security protocols and technologies to protect against cyber threats and unauthorized access. Strengthen ICT security measures to ensure the confidentiality and integrity of project data. Leveraging ICT as a Communication Tool: Foster collaboration and information sharing among project stakeholders by empowering ICT as a communication tool. Invest in communication technologies such as mobile phones, internet, and radio to enhance outreach and engagement with the community. Development of a Comprehensive Monitoring and Evaluation Framework: Establish a comprehensive monitoring and evaluation framework using ICT tools to track project progress and assess the impact on the targeted population. Implement real-time data collection and analysis systems to enable timely decision-making and adjustments.

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