Effect of Enterprises Resource Planning System on the Sustainability of Non-Governmental Organisations: A Case Study of NGOs in Kinondoni District

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Abstract:

The study examined the effect of an Enterprise Resource Planning System (ERP) on Non-Governmental Organization (NGO) sustainability on the three organizational Sustainability pillars of stakeholder engagement, financial viability, and operational efficiency. The research methodology employed in this study involved a sample of 22 NGOs in Kinondoni District, all of which have been operating for over a decade, actively engaged in projects, and have integrated ERP systems into their operations. Maximum variation sampling was used to select NGOs from the target population. A descriptive research design was adopted, and data was collected using structured questionnaires to gather insights into the experiences and perceptions of NGO representatives regarding ERP system implementation and its impact on sustainability. The findings of this research underscore the positive influence of ERP systems on the sustainability prospects of NGOs in Kinondoni District. The study reveals that ERP systems have led to notable improvements in stakeholder interaction, financial viability, and operational efficiency within these organizations. ERP system has enhanced communication with stakeholders, streamlined financial management processes, and optimized operational workflows, ultimately contributing to the long-term sustainability of NGOs. The study offers recommendations for NGOs to emphasize the potential benefits of ERP system adoption and the need for strategic planning to maximize the advantages of these systems. Furthermore, this research contributes to the broader understanding of how technology adoption can enhance the sustainability of organizations in the nonprofit sector in Tanzania.

Keywords: ERP, Sustainability, Financial viability, stakeholder engagement, operational efficiency.

Introduction

Globally, the Private sector, mainly Non-Governmental Organizations (NGOs), plays a pivotal role in addressing socio-economic and environmental challenges. Their efforts are crucial in pursuing the Sustainable Development Goals outlined by the United Nations (UN, 2015). The advantages of robust ICT infrastructures are evident in Europe and Eurasia. NGOs in these regions achieved a sustainability index ranging from 1 to 3.5 in 2022, marking an enhanced stage of development.
However, in stark contrast, African NGOs, specifically those in Tanzania, grapple with substantial sustainability challenges. Their sustainability index reveals the severity of these challenges, with a score of 4.3 (USAID, 2021). Many of these challenges arise from a heavy dependence on external financial resources. Moreover, shifts in the priorities of funding entities and the pervasive impacts of the COVID-19 pandemic have further exacerbated these issues (Ministry of Community Development, 2022).

The scarcity of resources is very critical when considering the sustainability of NGOs (Omeri, 2015). Organizations are confronted with increasing programs and activities that need consistent and adequate funding but will have to settle down with their limited funding opportunities. This can result in their unsustainability if measures are not implemented to address them. Omeri (2015) links financial sustainability to financial capacity, which the study argues is the extent to which management has flexibility in reallocating resources in light of opportunities and threats. Researchers in the NGO sector (Manyeruke, 2012; Waiganjo, 2012) agree that sustainability is one of the significant challenges facing the NGO sector in Africa.

The enterprise resource planning system is the unified information system that integrates organizational processes into one platform to achieve the organization’s strategic objective. Its adoption has been celebrated as a transformative force for many global organizations since the 1990s (Mahmood et al., 2019). While adoption in sub-Saharan Africa has been relatively slower (Bailey et al., 2017), there is an emerging trend in Tanzania, especially within the public sector, aiming to leverage ERP systems to bolster financial management and accountability (Lyimo, 2019). Despite the benefits of ERP systems in promoting organizational efficiency, transparency, and sustainability (Kigen et al., 2014; Cebekhulu et al., 2020; Zhang et al., 2020), the urgency for long-term sustainability strategies among NGOs is widely recognized, the debate over the most effective methodologies persists (USAID, 2021; Wulf et al., 2023).

In Tanzania, an assessment conducted to inform sustainability established that only 16.6% of NGOs perceived themselves as financially sustainable, 58.8% felt that their financial sustainability was seasonal, and a quarter (24.6%) confirmed that they were sustainable (Ministry of Community Development, 2022). NGOs strive for better resource management, transparency, and stakeholder communication (Gul & Swapnil, 2023). Notably, Enterprise Resource Planning (ERP) systems have gained attention as potential tools that bolster sustainability through their touted benefits of transparency, accountability, and efficiency (Barna, 2022; Dedan, 2019; Njuki, 2015). However, a crucial research gap remains: the specific impact of ERP systems on the financial sustainability efforts of NGOs within the Tanzanian context, especially in the Kinondoni District, is underexplored. This oversight could hinder NGOs in the region from harnessing the full potential of ERP systems, possibly compromising their financial viability and alignment with larger developmental agendas like SDG 9 (UN, 2023) and Tanzania’s Five Year Development Plan (Ministry of Health, 2021). To address this gap, the study delves into the influence of ERP systems on NGO financial sustainability in the Kinondoni District. The findings aim to enlighten NGO leaders, policymakers, and stakeholders on the pros and cons of ERP adoption, steering their decisions in the quest for enhanced sustainability.

Materials and Methods

This section delineates the various techniques and tools employed to answer the research questions, offering a detailed examination of the study’s geographical coverage, the research design, the approach undertaken, the targeted study population, the sampling technique, and the means of data collection and analysis. Through a structured methodology, this study aims to describe the use of ERP systems and how it impact the sustainability of non-governmental organizations in Kinondoni districts.
Study Area

The study area refers to a research study’s geographical, cultural, or national coverage and defines the specific location or region where the study will be conducted (Lipsanen, 2001). The study was conducted in Dar es Salaam, specifically in Kinondoni District, because out of the 594 registered NGOs in Dar es Salaam, 255 NGOs are in the Kinondoni District (NaCoNGO, 2020), indicates a significant presence and activity of NGOs in the district, making it an ideal study area for research related to NGOs.

Research Design

The research design is the blueprint that guides the collection, measurement, and data analysis processes, ensuring the study is structured and systematic. A well-planned research design ensures the reliability and validity of the study's findings (Jilcha, 2020). The study used a descriptive research design. This design was crucial for studies that accurately profile the situations and the nature of the relations between phenomena or variables under investigation. This design provided tools and methods for describing various data types and a robust set of tools for analyzing data and drawing conclusions from the data variables (Manamba, 2020). In this study, the researcher assessed sustainability from multiple indicators by weighting the selected indicators and aggregating those indicators into a composite index (USAID, 2021). This study used a descriptive strategy because the sustainability assessment is subjected to multicollinearity, common in which independent variables are positively associated (Gan, et al., 2017).

Research Approach

A research approach encompasses the plans and procedures for research, ranging from broad assumptions to intricate data collection methods, analysis, and interpretation (Creswell & Creswell, 2018). The researcher chose the quantitative research approach because it specializes in collecting and analyzing structured data that can be numerically represented (Goertzen, 2017). The choice was influenced by the study’s requirement for data to be represented numerically, its descriptive nature, predictability, and the need for standardized and structured measures. The descriptive approach primarily uses structured and standardized measures. This makes it highly suitable for detailing the effects of the ERP system on NGO sustainability in the Kinondoni District.

Study Population

According to Kathrynn & McGuire (2023), a study population refers to a group of individuals, animals, or archives a researcher is interested in examining. The central objective of this study was to assess the influence of the ERP system on the sustainability of NGOs within the Kinondoni district. This assessment aimed to provide insights into how technology, in the form of the ERP system, affects the longevity of NGOs in the study area.

Based on the data from the National Association of Community Organizations (NACONGO, 2020), the study identified 22 NGOs in the Kinondoni district that meet the set criteria, which were the NGOs that have active membership up to 2023, have been operating for more than ten years, and have been using the ERP system in their operations. The criteria-based selection ensures the reliability and relevance of the study results, as it focused on NGOs with a proven track record and consistent use of the ERP system in their operations.

Sample Size

The sample size is an operationalized representation of the target population and is the group of units from which the sample is recruited (Creswell & Creswell, 2018). The sample size of the study was determined by using the normal approximation to the hypergeometric distribution due to the study population to be less than 50 (Morris, 2023).

\[
n = \frac{Nz^2pq}{(E^2(N-1)+z^2pq)} \]

(1)

Source: (Nicholson, 1956)

Where

\n\text{n is the required sample size}
**Sampling Technique**

The sampling technique is the approach used to obtain the members of the sample either by using probability or non-probability sampling (Mweshi & Sakyi, 2020). In this study, the researcher used maximum variation sampling as a non-probability sampling strategy to capture a broad spectrum of variations within the study population and determine the full range of extremes (Kathrynn & McGuire, 2023). By employing maximum variation sampling, the intention was to ensure that the sample represents the full range of diversity within the larger population to explore and understand the varying impacts of the ERP system across different NGOs. The researcher defined the study population as 22 registered NGOs in the Kinondoni districts (NaCoNGO, 2020) and verified by the Kinondoni Community Development Officer (2023). The selected 22 NGOs sample from registered NGOs had the following characteristics: more than ten years ago, with active projects and NGOs adopting ERP in their operations.

**Data Collection Methods**

Data collection methods systematically gather and measure information on variables of interest (Polit & Beck, 2003). This study used survey research as the data collection method because it offered flexibility, efficiency, and the ability to collect data quickly and uniformly through standardized self-reports collected using a survey (Kathrynn & McGuire, 2023). The data collection process in this study involved administering surveys to the selected NGOs in the sample, and survey administration included email surveys and physically administered questionnaires. The questionnaire administered to NGOs contains four sections with 35 questions in total. The first section collects the background information of the NGOs, which includes six questions. The second section comprised nine questions with a Likert scale to assess ERP's effect on stakeholder engagement. The third section contains ten questions with five Likert scales aimed at determining the impact of ERP on financial viability, and the last section comprises ten questions with five Likert scales aimed at assessing the effect of ERP on an NGO's operational efficiency. Study data were gathered using the census approach, where the researcher submitted the survey questioner to the sampled NGOs, and then the responsible person assigned by the head of the NGOs responded to the survey collected from the office. Another approach was using an email survey where the sampled NGOs were sent an email of the study designed by the Survey Monkey tool, and the responsible assigned personnel filled out the survey.

**Measurement Instrument**

The instrument used for data collection contained scales to measure the various perspectives of the research. This study had three constructs, each of which has multiple items. The questionnaire was ranked using a Likert scale with items ranging from 1 (strongly Agree) to 5 (Strongly Disagree). These items were adapted from the literature reviews, as shown in the table below, to improve the instrument's content validity.

N = 22 is the population size

P = 0.5 and q = 0.5 are the population proportions.

z is the value that specifies the level of confidence you want in your confidence interval when you analyze your data. Typical levels of confidence for surveys are 95%, in which case z is set to 1.96.

E = 0.03 sets the accuracy of your sample proportions.

From the calculation above the sample size is 22 NGOs and the study aimed to drive meaningful insights into the effect of ERP systems on the sustainability of long-standing organizations. The study focused on a specific population of NGOs in Kinondoni that are using ERP; therefore, the sample size is sufficient to provide meaningful insight into the effects of ERP on NGOs in this population because the sample size included all 22 NGOs that meet the inclusion criteria.
Table 1. Constructs, Measurement Items, and Source

<table>
<thead>
<tr>
<th>Constructs</th>
<th>Measuring Items</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Financial Viability</td>
<td>10</td>
<td>USAID(2021),Cella-De-Olivera(2013),NSNS (2022)</td>
</tr>
<tr>
<td>Operational Efficiency</td>
<td>10</td>
<td>USAID (2021),Cella-De-Olivera(2013),NSNS (2022)</td>
</tr>
</tbody>
</table>

Data Analysis

Data analysis converts the gathered data to meaningful information (Taherdoost, 2020). The study used descriptive analysis to analyze the findings by employing central tendency measures like mean and weighted mean, while variability was gauged using standard deviation (Kathrynn & McGuire, 2023). Given the objective to examine the effect of ERP on NGO sustainability in the Kinondoni district, descriptive statistics were considered appropriate because they provide a comprehensive snapshot of the main characteristics of the dataset, capturing the general trend and dispersion of responses. The mean and weighted mean were employed to understand the general tendency of the data, with the latter offering insights into data points that held varying degrees of significance or relevance. Also, Standard deviations offered insight into the spread and consistency of the data, ensuring that the range of responses was adequately captured. Initial data gathered via SurveyMonkey was cleaned and prepared for analysis. This involved filtering out incomplete responses, categorizing open-ended responses, and structuring the data in a format suitable for SPSS.

Reliability

Reliability is the extent to which the measurement of a phenomenon provides stable and consistent results (Taherdoost, 2016). The reliability of measured instruments was measured using internal consistency, which assessed the extent to which participants responded consistently to multiple items on the questionnaire (Kathrynn & McGuire, 2023). Internal consistency of the instruments was measured using the Cronbach Alpha coefficient (Kathrynn & McGuire, 2023). The study used the Cronbach Alpha coefficient to assess the internal validity because it is the most appropriate measure of reliability because the study instruments used the Likert scale (Taherdoost, 2016). The internal consistency was assessed against the cut-off of the most agreed minimum internal consistency coefficient of 0.70 (Kathrynn & McGuire, 2023). Variables reliability of the survey computed using SPSS software as shown below in table 3.5.

Table 2. Reliability Statistics for OpeE, Finc, and SteE

<table>
<thead>
<tr>
<th>Reliability Statistics for OpeE, Finc, and SteE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cronbach's Alpha</td>
</tr>
<tr>
<td>0.852</td>
</tr>
</tbody>
</table>

Source: Researcher (2023)

Ethical Consideration

The respondents' ethical standards, confidentiality, and anonymity were ensured by not disclosing personal or organizational information. The researcher seeks informed consent from the respondents before administering the questionnaires collected data for this research only.

Results

Presentation of the Effect of ERP System on Financial Viability

The study's second objective was to assess the effect of the ERP system on the financial viability of the NGO's sustainability. The results from the responses from the NGOs that participated in this study show that the ERP System has a positive effect on the financial viability of the NGOs sustainability because the weighted average of 10 survey questions which
were used to assess the economic viability indicated that the from range of 1 to 5 the weighted range was 1.722 the responses range from strongly agreed to agreed.

Table 3. Financial Viability Mean and Standard Deviation

<table>
<thead>
<tr>
<th>Code</th>
<th>Variable item</th>
<th>Weighted Mean</th>
<th>SD</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fincq1</td>
<td>Track and Monitor Revenue</td>
<td>1.73</td>
<td>0.86</td>
<td>Strongly Agree</td>
</tr>
<tr>
<td>Fincq2</td>
<td>Accuracy and Reliability of Revenue Data</td>
<td>1.95</td>
<td>0.77</td>
<td>Agree</td>
</tr>
<tr>
<td>Fincq3</td>
<td>Financial Transparency</td>
<td>1.27</td>
<td>0.54</td>
<td>Strongly Agree</td>
</tr>
<tr>
<td>Fincq4</td>
<td>Track and Manages Expenses</td>
<td>1.18</td>
<td>0.39</td>
<td>Strongly Agree</td>
</tr>
<tr>
<td>Fincq5</td>
<td>Accuracy and Transparency of Expenses</td>
<td>1.50</td>
<td>0.58</td>
<td>Strongly Agree</td>
</tr>
<tr>
<td>Fincq6</td>
<td>Monitor and Manage Cash flows</td>
<td>1.41</td>
<td>0.49</td>
<td>Strongly Agree</td>
</tr>
<tr>
<td>Fincq7</td>
<td>Saving Opportunities and Reducing Expenditure</td>
<td>1.91</td>
<td>0.60</td>
<td>Agree</td>
</tr>
<tr>
<td>Fincq8</td>
<td>Cash flow Stability and liquidity</td>
<td>2.00</td>
<td>1.00</td>
<td>Agree</td>
</tr>
<tr>
<td>Fincq9</td>
<td>Financial Planning</td>
<td>1.59</td>
<td>0.65</td>
<td>Strongly Agree</td>
</tr>
<tr>
<td>Fincq10</td>
<td>Budgetary internal control</td>
<td>1.73</td>
<td>0.54</td>
<td>Strongly Agree</td>
</tr>
</tbody>
</table>

Source: Field data

Table 4. Financial Viability Findings

<table>
<thead>
<tr>
<th>Financial Viability</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
<th>Total</th>
<th>Weighted Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fincq1</td>
<td>54.55%</td>
<td>12</td>
<td>18.18%</td>
<td>4</td>
<td>0.00%</td>
<td>6</td>
<td>0.00%</td>
</tr>
<tr>
<td>Fincq2</td>
<td>31.82%</td>
<td>7</td>
<td>40.91%</td>
<td>9</td>
<td>0.00%</td>
<td>6</td>
<td>0.00%</td>
</tr>
<tr>
<td>Fincq3</td>
<td>77.27%</td>
<td>17</td>
<td>18.18%</td>
<td>4</td>
<td>4.55%</td>
<td>1</td>
<td>0.00%</td>
</tr>
<tr>
<td>Fincq4</td>
<td>81.82%</td>
<td>18</td>
<td>18.18%</td>
<td>4</td>
<td>0.00%</td>
<td>0</td>
<td>0.00%</td>
</tr>
<tr>
<td>Fincq5</td>
<td>54.55%</td>
<td>12</td>
<td>40.91%</td>
<td>9</td>
<td>4.55%</td>
<td>1</td>
<td>0.00%</td>
</tr>
<tr>
<td>Fincq6</td>
<td>50.00%</td>
<td>13</td>
<td>40.91%</td>
<td>9</td>
<td>0.00%</td>
<td>0</td>
<td>0.00%</td>
</tr>
<tr>
<td>Fincq7</td>
<td>36.36%</td>
<td>8</td>
<td>36.36%</td>
<td>8</td>
<td>22.73%</td>
<td>5</td>
<td>4.55%</td>
</tr>
<tr>
<td>Fincq8</td>
<td>50.00%</td>
<td>11</td>
<td>40.91%</td>
<td>9</td>
<td>9.09%</td>
<td>2</td>
<td>0.00%</td>
</tr>
<tr>
<td>Fincq9</td>
<td>31.82%</td>
<td>7</td>
<td>63.64%</td>
<td>14</td>
<td>4.55%</td>
<td>1</td>
<td>0.00%</td>
</tr>
<tr>
<td>Fincq10</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Field data

The analysis of ERP systems' impact on financial management within NGOs revealed insightful patterns. For Tracking and Monitoring Revenue, a weighted mean of 1.73 indicated that 72.73% of respondents agreed, with a spread of opinions by 0.86 units around the mean value. In terms of the Accuracy and Reliability of Revenue Data, 72.73% of respondents positively agreed, with a weighted mean of 1.95 and a substantial diversity of opinions indicated by a spread of 0.77 units. The emphasis on Financial Transparency was evident, with 95.45% either strongly agreeing or agreeing, and a weighted mean of 1.27. Tracking and Managing Expenses received unanimous
support, with 100% of respondents agreeing, and a spread of opinions by 0.39 units around the mean value of 1.18. For Accuracy and Transparency of Expenses, 95.46% of respondents supported the ERP system's role, with a spread of opinions by 0.58 units around the mean value of 1.5. Monitoring and Managing Cash Flows saw positive responses from 99.99% of organizations, with a weighted mean of 1.41 and a consistent agreement indicated by a spread of 0.49 units. Regarding Cost-Saving Opportunities and Reduction of Expenditure, 95.45% agreed, with a weighted mean of 1.91 and a standard deviation of 0.6. Cash Flow Stability and Liquidity received varied responses, with 72.72% agreeing and a high standard deviation of 1 unit. Financial Planning garnered strong support, with 90.91% positively agreeing and a weighted mean of 1.59, while Budgetary Internal Control showed consistent views, with 95.46% agreeing and a weighted mean of 1.73, indicated by a standard deviation of 0.54. Overall, these findings highlight the significant positive impact of ERP systems on various aspects of financial management within NGOs, though some areas show diverse perspectives.

**Presentation of the Effect of ERP on Operational Efficiency**

This section presents the results concerning evaluating the Effect of the ERP system on NGOs' operational efficiency in various dimensions. The research aimed to understand how specific operational metrics are perceived in operational efficiency.

<table>
<thead>
<tr>
<th>Operational Efficiency Standard Deviation and Weighted Mean</th>
<th>Code</th>
<th>Variable item</th>
<th>Weighted Mean</th>
<th>SD</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>OpEq1 Efficiency and Speed of Task and Project Completion</td>
<td>1.5</td>
<td>0.78</td>
<td>Strongly Agree</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OpEq2 Meet Deadline and timely results delivery</td>
<td>1.86</td>
<td>0.69</td>
<td>Strongly Agree</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OpEq3 Environmental Policies Integration to Strategic Policies</td>
<td>2.00</td>
<td>0.52</td>
<td>Agree</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OpEq4 Accuracy and Reliability of Data Quality</td>
<td>1.73</td>
<td>0.69</td>
<td>Strongly Agree</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OpEq5 Address Data Quality Issues</td>
<td>1.95</td>
<td>0.47</td>
<td>Agree</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OpEq6 Employee Productivity</td>
<td>2</td>
<td>1</td>
<td>Agree</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OpEq7 Provision of Tools and Resources</td>
<td>1.59</td>
<td>0.83</td>
<td>Strongly Agree</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OpEq8 Reduction of Errors and Rework</td>
<td>1.55</td>
<td>0.66</td>
<td>Strongly Agree</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OpEq9 Reduction of Waste</td>
<td>1.59</td>
<td>0.58</td>
<td>Strongly Agree</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OpEq10 Resource Allocation and utilization</td>
<td>1.23</td>
<td>0.52</td>
<td>Strongly Agree</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Source:** Field data

Table 6. Operational Efficiency Findings

<table>
<thead>
<tr>
<th>Operational Efficiency</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
<th>Total</th>
<th>Weighted Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>OpEq1</td>
<td>63.64%</td>
<td>14</td>
<td>27.27%</td>
<td>6</td>
<td>4.55%</td>
<td>1</td>
<td>0.00%</td>
</tr>
<tr>
<td>OpEq2</td>
<td>27.27%</td>
<td>6</td>
<td>63.64%</td>
<td>14</td>
<td>4.55%</td>
<td>1</td>
<td>0.00%</td>
</tr>
<tr>
<td>OpEq3</td>
<td>13.64%</td>
<td>3</td>
<td>72.73%</td>
<td>16</td>
<td>13.64%</td>
<td>3</td>
<td>0.00%</td>
</tr>
<tr>
<td>OpEq4</td>
<td>40.91%</td>
<td>9</td>
<td>45.45%</td>
<td>10</td>
<td>13.64%</td>
<td>3</td>
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</tr>
<tr>
<td>OpEq5</td>
<td>13.64%</td>
<td>3</td>
<td>72.73%</td>
<td>17</td>
<td>9.09%</td>
<td>2</td>
<td>0.00%</td>
</tr>
<tr>
<td>OpEq6</td>
<td>31.82%</td>
<td>7</td>
<td>50.00%</td>
<td>11</td>
<td>9.09%</td>
<td>2</td>
<td>4.55%</td>
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<tr>
<td>OpEq7</td>
<td>59.09%</td>
<td>13</td>
<td>27.27%</td>
<td>6</td>
<td>9.09%</td>
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</tr>
<tr>
<td>OpEq8</td>
<td>54.55%</td>
<td>12</td>
<td>36.36%</td>
<td>8</td>
<td>9.09%</td>
<td>2</td>
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</tbody>
</table>
The results obtained from the study offered valuable insights into the effects of ERP systems on NGOs' operational efficiency. The analysis of various dimensions related to the integration of ERP systems in NGOs revealed notable patterns. In terms of Speed and Efficiency in Task and Project Completion, a weighted mean of 1.5 indicated that 91.37% of respondents agreed that ERP systems enhance project and task completion speed. Similarly, for Timely Delivery & Meeting Deadlines, the weighted mean of 1.86 suggested that 91.37% of respondents positively agreed that ERP systems contribute to punctuality in deliverables. Regarding Environmental Policies Integration, 86.37% of respondents agreed that ERP systems aid in incorporating environmental policies into strategic plans. The aspect of Data Quality: Accuracy & Reliability showed that 86.36% of respondents agreed that ERP systems enhance data accuracy and reliability. Furthermore, consensus was observed in the area of Addressing Data Quality Issues, with 90.91% agreeing that ERP systems can enhance data reliability for NGOs. Employee Productivity received a positive response from 81.82% of respondents, while Provision of Tools and Resources garnered a strong agreement from 86.36%. Reduction in Errors & Rework indicated that 90.91% of respondents believe ERP systems considerably minimize errors. For Reduction of Waste, 95.5% agreed that ERP systems contribute to reducing waste and fostering sustainable practices. Lastly, Resource Allocation & Utilization achieved a robust consensus, with 81.82% strongly agreeing and 13.64% agreeing. The consistency of respondent opinions is highlighted by the relatively low variation around mean values, emphasizing the positive impact of ERP systems across diverse operational aspects in NGOs.

Presentation of the Effect of ERP on Stakeholder Engagement

This study's objective was to assess the effect of the ERP system on stakeholder engagement on the sustainability of NGOs. The results below show the responses from the NGOs who participated in the study on the assessment of the effect of the ERP system on Stakeholder engagements. Stakeholder engagement was assessed using eight indicators with a five Linkert scale.

Table 7. Stakeholder Engagement Standard Deviation and Weighted Mean

<table>
<thead>
<tr>
<th>Stakeholder Engagement</th>
<th>Weighted Mean</th>
<th>SD</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>StEq1</td>
<td>1.95</td>
<td>0.47</td>
<td>Agree</td>
</tr>
<tr>
<td>StEq2</td>
<td>2.18</td>
<td>0.65</td>
<td>Agree</td>
</tr>
<tr>
<td>StEq3</td>
<td>1.45</td>
<td>0.78</td>
<td>Strongly Agree</td>
</tr>
<tr>
<td>StEq4</td>
<td>2.05</td>
<td>0.77</td>
<td>Agree</td>
</tr>
<tr>
<td>StEq5</td>
<td>1.77</td>
<td>0.67</td>
<td>Strongly Agree</td>
</tr>
<tr>
<td>StEq6</td>
<td>2.23</td>
<td>0.73</td>
<td>Agree</td>
</tr>
<tr>
<td>StEq7</td>
<td>2.73</td>
<td>0.54</td>
<td>Neutral</td>
</tr>
<tr>
<td>StEq8</td>
<td>2.45</td>
<td>0.66</td>
<td>Agree</td>
</tr>
</tbody>
</table>

Source: Field data
The evaluation of the impact of ERP systems on stakeholder-related dimensions within NGOs revealed several noteworthy findings. Regarding Effective Communication and Stakeholder Collaboration, a weighted mean of 1.95 indicated that 90.91% of respondents agreed that the ERP system enhanced communication and collaboration with stakeholders. For Coordination and Organizing Stakeholder Meetings, 77.27% of respondents agreed that ERP systems enhance coordination, while 9.09% strongly agreed, with a weighted mean of 2.18. The aspect of Stakeholder Trust garnered strong consensus, with 90.91% either strongly agreeing or agreeing, and a weighted mean of 1.45. For Stakeholder Role, 77.28% agreed that ERP systems improved stakeholders’ understanding of their role, with a weighted mean of 2.05. Responding to Stakeholder Feedback received a positive response from 95.46% of respondents, with a weighted mean of 1.77. In terms of Improvement of Goods and Services, 59.09% agreed, and 18.18% strongly agreed, resulting in a weighted mean of 2.23. Knowledge of Market Demand showed a more neutral response, with 63.34% expressing neutrality. For Government Recognition and Support, 54.55% agreed, and 4.55% strongly agreed, with a weighted mean of 2.73. The variations in responses, as indicated by slightly higher standard deviations, suggest diverse perspectives within the sampled NGOs, emphasizing the need for tailored strategies in stakeholder engagement facilitated by ERP systems.

Discussion

Effect of ERP System on Financial Viability

The financial viability of NGOs is paramount for their long-term sustainability. In light of this, our study delved into the potential effects of ERP systems on various dimensions of financial viability, such as monitoring revenue, ensuring data accuracy, elevating financial transparency, and streamlining expenses. Financial viability emerged as the most significantly impacted dimension, with a value of $\mu_{\text{finc}} = 1.627$. Historically, African NGOs have faced myriad challenges related to financial management, including transparency, accountability, and budgeting (Ebenezer, et al., 2020). An ERP system’s capability to integrate different economic facets and streamline financial operations might positively influence financial sustainability. The tight distribution around this mean, as represented by a standard deviation of $\sigma_{\text{finc}} = 0.64$ accentuates a consensus among
the participants regarding the efficacy of ERP in enhancing financial sustainability. Study findings echo the research outcomes of prominent scholars, establishing a strong correlation between ERP system adoption and improved financial viability for NGOs.

The research confirms that integrating ERP systems into NGO operations has many financial benefits. Such systems enhance capabilities to track and monitor revenue and amplify the accuracy and reliability of revenue data. Additionally, these systems pave the way for elevated financial transparency and more robust internal controls, ultimately leading to cost savings and better budgetary oversight.

The study's outcomes reveal that ERP systems are instrumental in bolstering the capability of NGOs to track and monitor revenue streams effectively. This aligns seamlessly with Gupta et al.'s (2020) findings, underscoring the centrality of such systems in augmenting revenue monitoring capabilities.

Another pivotal finding from our study indicates that ERP systems enhance the accuracy and reliability of NGOs' revenue data. This observation finds corroboration in Barna et al.'s (2021) study, which delved deep into the transformative potential of ERP systems in ensuring data precision.

A standout revelation from our research pertains to the role of ERP systems in enhancing financial transparency, especially concerning expense records. Ebenezer et al. (2020) resonate with this observation, elaborating on how ERP systems can eliminate data discrepancies and foster an environment of trust through transparent financial reporting.

Study findings also highlight the cost-saving potential of ERP systems for NGOs. Barna et al. (2021) echoed similar sentiments in their research, emphasizing these systems' cost efficiency and optimization capabilities.

ERP systems emerge as invaluable assets in promoting the financial sustainability of NGOs. They streamline financial operations and enhance these processes' accuracy, transparency, and overall efficiency. The synergy between the findings of this study and the cited scholarly works offers a comprehensive perspective, enhancing the conclusions' robustness and relevance in the broader research landscape.

**Effect of ERP System on Operational Efficiency**

As NGOs navigate the complexities of delivering on their mandates, operational efficiency is vital in ensuring sustainability. This section elucidates how incorporating ERP systems positively impacts operational efficiency, including task completion speed, data quality, and resource allocation. ERP systems demonstrated a significant positive effect on Operational Efficiency with a value of $W_{\text{OPE}} = 1.7$, it is evident that implementing ERP systems can considerably enhance an NGO's Operational Efficiency and resilience. This discussion draws from this study's findings and integrates insights from recent scholarly work to present a comprehensive view.

The research demonstrates a consensus that ERP systems enhance NGOs' operational efficiency through various avenues. These include fostering efficiency and speed in task completion, ensuring data quality, addressing quality issues effectively, enhancing organizational productivity, and optimizing resource allocation and utilization. This affirmation, aligned with insights from Harun et al. (2022), AlMuhayfith & Shaiti (2020), Barna & Igna (2021), Saleh & Thoumy (2020), Tarigan & Siagian (2021), and Cebekhulu et al., (2020), offers a rich tapestry of understanding grounded in empirical evidence.

As highlighted in the study, the ERP systems significantly improved the efficiency and pace of task and project completion. This is further bolstered by the findings of Tarigan & Siagian (2021), emphasizing the systems' role in enhancing operational fluency.

The study reveals the ERP systems' prowess in enhancing the accuracy and reliability of organizational data, a sentiment echoed by Barna & Igna (2021), thereby spotlighting the indispensable role of data quality in operational efficiency.
The findings showcase that ERP systems are instrumental in identifying and effectively addressing quality issues, a perspective shared by Harun et al. (2022), thereby pointing to the enhanced problem-solving capabilities imparted through these systems.

The research highlights the ERP system's role in augmenting employee productivity, providing them with the requisite tools and resources for efficient task execution, a finding corroborated by AlMuhayfith & Shaiti (2020).

A notable benefit brought by the ERP systems, as the study underlines, is the marked reduction in errors and the need for rework, a point similarly raised by Cebekhulu et al. (2020), thus speaking to the enhanced process reliability achieved through ERP system integration.

Lastly, the study draws attention to the improved resource allocation and utilization facilitated by ERP systems, a development similarly spotlighted in the work of Saleh & Thoumy (2020), thereby emphasizing the systems' role in fostering resource efficiency.

In conclusion, the findings affirm the transformative role of ERP systems in enhancing NGOs' operational efficiency across various fronts. The diverse benefits, from faster task completion to improved data reliability, testify to the systems’ pivotal role in driving NGO sustainability. This discussion, grounded in empirical evidence and supported by recent scholarly work, underscores the criticality of adopting ERP systems in NGOs to foster a more efficient, productive, and sustainable operational landscape.

Effect of ERP System on Stakeholder Engagement

The criticality of stakeholder engagement for NGOs' sustainability is inarguable. Effective engagement strategies include timely communication, trust-building, understanding stakeholder roles, and facilitating participative decision-making. The primary aim of our study was to ascertain the effect of ERP systems on these dimensions of stakeholder engagement. ERP systems demonstrated a significant positive impact on Stakeholder engagement. With a value of $W_{SE} = 2.1$, it is evident that implementing ERP systems can considerably enhance an NGO's stakeholder engagement.

Research findings confirm that ERP systems are vital in amplifying stakeholder engagement, leading to enhanced sustainability for NGOs. Research indicates that these systems streamline communication and collaboration and fortify stakeholder trust. Furthermore, they offer clarity on stakeholder roles and responsibilities, paving the way for improved and informed decision-making.

The study's results reaffirm that ERP systems catalyze efficient and effective stakeholder communication and collaboration. This finding finds resonance in Bhadauria & Dasgupta's (2020) research, which emphasized the transformative potential of ERP systems in crafting transparent, direct, and efficient communication channels.

As per our study, enhanced stakeholder trust, a pivotal outcome of ERP system adoption, is also mentioned in Aggrey et al. (2021). Their work elucidates how an ERP system's functionalities can positively steer management's decision-making, further consolidating stakeholder trust.

An exciting revelation from our research was the expedited responsiveness of NGOs to stakeholder feedback post-ERP system integration. This aligns with the findings of Kiprono et al. (2020), who expounded on the benefits of responsive stakeholder feedback mechanisms. Besides the immediate advantages of enriched communication, such feedback loops also lead to refined decision-making and policy formation.

Furthermore, our findings bear a significant parallel with the tenets of the AA1000 Stakeholder Engagement Standard (AccountAbility, 2015). This standard stresses inclusivity, which, in the context of ERP systems, translates to a more comprehensive stakeholder dialogue mechanism.

Integrating ERP systems into the operational fabric of NGOs aligns perfectly with the broader objective of elevating stakeholder engagement, a
cornerstone of NGO sustainability. The synergy between our research outcomes and those of scholars like Bhaduria & Dasgupta (2020) and Kiprono et al. (2020) offers a more holistic understanding of ERP systems' impact and solidifies our findings' relevance in academic and pragmatic domains.

Conclusion

ERP system has shown it significantly fortifies the sustainability pillars of NGOs in Tanzania, especially in enhanced long-term sustainability in reinforcing financial viability, streamlining operations, and fostering stakeholder trust in the NGO sector.

The study underscores the transformative potential of ERP systems in reinforcing financial viability by examining metrics like revenue monitoring, data accuracy, transparency enhancement and cost efficiency, its evident that ERP systems offers transformative benefits. The adoption of ERP system amplifies NGOs financial resilience and drives sustainable operations, ensuring the organization longevity and effectiveness. ERP systems augment NGOs abilities to track and oversee various revenue streams, setting a foundation for financial stability. The precision and reliability of financial data are markedly improved with ERP systems, assuring concerns over data discrepancies and fostering informed decision making. The adoption of ERP systems translates to heightened transparency in financial matters, nurturing an environment of trust among stakeholders.

It is evident that ERP system plays the transformative potential role in enhancing the smooth operation of the Organization and drives sustainable operations, ensuring the organization longevity and effectiveness. Through enabling timely task completion, improving data quality, enhancing employee productivity, reducing errors, and facilitating effective resource planning and allocation, ERP systems emerge as instrumental tools in ensuring the longevity and success of the organization. As we navigate an increasingly complex and dynamic business environment, the adoption and effective utilization of ERP systems become imperative for organizations, including NGOs, seeking to thrive and maintain a competitive edge in their operations.

The survival and long-term sustainability of non-governmental organizations (NGOs) hinge crucially on the cultivation of stakeholder trust and the facilitation of effective communication and collaboration among stakeholders. The evident role of ERP systems in providing tools and mechanisms for enhancing stakeholder trust, along with improving communication and collaboration, presents a significant opportunity for NGOs to not only survive but also thrive in their operations. As NGOs operate in an environment where trust and effective stakeholder engagement are paramount, the strategic adoption of ERP systems becomes a key enabler in fostering a robust foundation for organizational longevity, resilience, and continuous improvement. By leveraging these technological solutions, NGOs position themselves to navigate challenges more effectively, thereby increasing their chances of sustained success and positive impact in their respective missions.

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Conflict of Interests

No conflict of interest.

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