

Relationship Between Resource Utilization And Project Performance In Advancing Citizens Engagement Case Study: Musanze District

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ABSTRACT

This study explores the link between resource management practices and project performance in the Advancing Citizens Engagement Project in Musanze District. Using a correlation research design, the study examines the influence of resource planning, allocation, and utilization on project performance. Data from 100 project workers were collected using questionnaires, interviews, and documentation. Statistical analyses show a significant positive correlation between resource management practices and project performance. The study also reveals that efficient resource allocation contributes to cost control, budget adherence, objective attainment, and timely completion. Resource planning, allocation, and utilization collectively explain approximately 62.6% of the variation in project performance. The results confirm the significant impact of these practices on project performance.

Keywords: Resource Utilization, Project Performance, Citizen Engagement, Resource Management, Efficiency

I. INTRODUCTION

At the global level, the importance of effective project resource management practices has been increasingly recognized in recent years in the world (Cleland & Ireland, 2019). The failure to implement sound resource management practices can lead to delays, budget overruns, and compromised project outcomes (Kerzner, 2017). African countries face unique challenges, such as limited resources, political instability, and inadequate infrastructure, which further emphasize the importance of effective project resource management (Adlbrecht & Hartmann, 2018).

East African nations are pursuing various development initiatives to uplift their economies, necessitating efficient project resource management practices to ensure the successful execution of these projects (Nyamagere, 2020). Due to this evolution, nowadays projects can be defined as one-time, complex, unique sequence of activities carried out in a project organization with time, and budget constraints and they implement a definite output (project result) (Görög, 2013b). In Rwanda like other countries there are many organizations which survive through creation of projects, some of those organizations are the private organizations, non-government organizations (NGOs), public organizations. CETRAF Ltd and URWIBUTSO Enterprise are the examples of private organizations. Among the non-government organizations there are SPARK Microgrants, World vision, UNDP, Care international Rwanda.

The Spark Process encourages communities to envision and work towards their own goals, putting them in the driver's seat of their futures (Spark, 2022). Project finally discusses the transformations needed to emerge from a deeply unsatisfactory social and economic situation. Therefore, to actualize these transformations, all forms of organizations need to create and improve their services, products and facilities, and mostly this is done through projects (Spark, 2022). According to the PMI's pulse of the profession study (2015), all change in an organization happens through projects and programs-by many different names.

The proposed research aims to investigate the current project resource management practices employed in the advancing citizens engagement project prepared and funded by spark microgrants in Musanze district and analyze their influence on

project performance. By focusing on Rwanda, the study will contribute to the body of knowledge on project management practices in the African context, and specifically, in East Africa. Moreover, the findings will provide valuable insights for policymakers and project managers in Rwanda and other African nations to enhance the effectiveness of project resource management and achieve successful project outcomes. Therefore, the research aims to bridge the gap by analyzing the relationship between project resource management practices and project performance of Spark Microgrants in Musanze, Rwanda. Exactly, the study is to analyze the relationship between project resource management practices and project performance of Spark Microgrants in Rwanda.

II. RELATED WORKS

The concepts of resource management practices and performance was discussed. The allocation of resources is the subsequent step, where resources are assigned to specific tasks based on their availability and skill set (Kerzner, 2017). Resource allocation refers to the process of distributing available resources, such as time, money, personnel, and materials, among various tasks, projects, or activities to achieve specific objectives or goals (Kaplan & Norton, 2001). Resource utilization refers to the measurement and assessment of the extent to which available resources are effectively and efficiently used to accomplish tasks, projects, or objectives (Smith & Johnson, 2010). Project performance refers to the evaluation and measurement of the outcomes, achievements, and results of a project in relation to its objectives, scope, quality, schedule, and budget (Atkinson, 1999).

Projects that leverage unique and valuable resources efficiently are more likely to achieve a competitive edge and deliver successful outcomes (Helfat & Peteraf, 2003). Contingency Theory posits that there is no one-size-fits-all approach to management practices, and the effectiveness of management decisions depends on the specific context and circumstances in which they are applied (Donaldson, 1996). A study by Kagoyire et al. (2017) investigated the relationship between resource utilization and project success in Rwanda. The research highlighted that projects that optimized resource utilization, ensuring that resources were allocated to tasks based on their

expertise and availability, were more likely to meet project milestones and deliverables on time. The study intended to find out the link between independent variable which is project resource management and the dependent variable which is project performance.

Furthermore, there is a scarcity of research examining the relationship between resource allocation and project performance, as well as resource utilization and project performance, in community development projects within Rwanda. Understanding how resources are allocated and utilized in a specific project context is crucial for improving the effectiveness and efficiency of development initiatives. While studies on resource management and allocation exist in the broader project management literature, their applicability and nuances in the context of community-based development projects, such as the "Advancing Citizens Engagement Project" in Musanze District, remain underexplored. The research gap becomes even more evident when considering the potential differences in resource allocation and utilization between community development projects and projects in other sectors or regions in Rwanda. Therefore, investigating these relationships is essential to identify any specific challenges, best practices, or areas for improvement in resource allocation and utilization for this particular project, which could contribute valuable insights to the field of project management in Rwanda.

III. RESEARCH METHODOLOGY

This study adopted a correlation research design. The major purpose of correlation is to describe the relationship between independent and dependent variables which are project resource management and the project performance. Study population According to Kasomo (2006), a population is any group of institution, people or objective that has at least one characteristic in common. It is also the group that a researcher has in mind from whom he/she can obtain information. This study has been conducted on Spark microgrants in Musanze sector. The study population is totaling 100 working in this project. The Census Method has been used where in each and every item in the universe is selected for the data collection. Whenever the entire population is studied to collect the detailed data about every unit, then the census method is applied

Table 1: Sampling population and their sample size

	Population size	Sampling technique
Country director	1	Census
Program manager	1	Census
Project manager	1	Census
District coordinator	4	Census
Trainers	93	Census
TOTAL	100	

Total of population to be questioned is equal to 100 workers and the sampling technique for the respondent's selection is census sampling method or universal sampling because the population size is less than 100, hence we are advised to use this method. Population to be looked at are staff working in this project. The study applied the following tools of data collection; questionnaires, interview especially for the employees and documentation used to collect secondary data. To ensure the validity of the research instrument, a part of supervisor guidance the researcher will ask for the opinion of various lecturers from University of Kigali especially from Postgraduate in order to validate instruments. The data collected has been processed using Statistical Package for Social Sciences (SPSS) to examine the strength of relationships and effects between variables. Qualitative data are non-numerical data that have not been quantified.

Descriptive statistics that indicate mean and standard deviation was also used for making the frequencies, percentages and making the tables for better analysis of the information. As descriptive statistics is more useful to analyze the data that need the use of table and charts so that the reader will try to understand the finding easily without any confusion. To assess the relationship between two numerical variables, the correlation analysis has been performed to detect the link between these two variables. Indeed, the correlation analysis consists of computing the

correlation coefficient r that is used to measure the strength and direction of a linear relationship between two variables. A correlation can only indicate the presence or absence of a relationship, not the nature of the relationship since correlation is not causation. A multiple correlation and regression has been used in this study.

IV. DATA ANALYSIS, INTERPRETATION AND DISCUSSION

In this section, the researcher interpreted and presented in tabulation manner the demographic profile of the respondents involved in the advancing citizens engagement project in Musanze District, providing valuable insights into the diverse backgrounds and characteristics of the individuals contributing to the project's execution and performance.

Age distribution of respondents

The respondents were requested to mention their age range. In examining the age distribution of respondents, we sought to gain a comprehensive understanding of the generational representation and the potential impact of age-related factors on project resource management practices and the overall performance of the advancing citizens engagement project in Musanze District.

		Frequency	Valid Percent
Valid	Less than 20	5	5
	[21-30]	50	50
	[31-40]	25	25
	Above 41	20	20
	Total	100	100.0

The demographic breakdown of the study shows a significant number of participants in their twenties and thirties, making up 50% of the total. Following closely behind are individuals aged 31-40, accounting for 25%. There are smaller percentages of respondents under 20 and over 41, each comprising 5% and 20% respectively. This distribution highlights the involvement of young people (5%) and the dominance of the 20-30 age group, which could potentially impact the project's performance. The participation of middle-aged (31-40) and experienced (over 41) individuals also makes a substantial contribution, emphasizing the

need to consider them in resource management strategies for the Advancing Citizens Engagement Project in Musanze District.

Distribution of marital status of respondents

The respondents were asked to establish their marital status to questionnaire, it was very important to analyze variable of marital status to find out whether occupation or home situation can influence project sustainability. The table 4.2 below shows the findings of respondents' marital status.

Distribution of marital status of respondents

		Frequency	Valid Percent
Valid	Single	39	39
	Married	50	50
	Divorced	5	5
	Widow	6	6
	Total	100	100

The largest group of respondents, accounting for 50%, are married, showing a significant presence. Singles make up 39%, which is also a considerable portion. Widows and divorced individuals account for 6% and 5% respectively. This data suggests that married individuals could have a significant influence on project management, while single individuals may be actively involved in the project. It also highlights the importance of considering the diverse marital statuses in project planning. Further examination is required to identify any potential gender-specific patterns.

important to examine the gender variable to find out if gender influence the sustainability of the project. The table 5 below indicated the gender distribution of respondents.

Gender distribution of respondents

The respondents were asked to mention their gender by putting tick in its box, it was

Gender distribution of respondents

		Frequency	Valid Percent
Valid	Male	57	57
	female	43	43
	Total	100	100.0

The majority of participants in the study are male (57%), showing a notable male presence. Nevertheless, females still make up a significant 43% of the sample. This equal gender distribution is important for a thorough examination of project resource management practices and performance. It enables a variety of viewpoints, taking into account how different genders interact with the project. As

a result, the conclusions and suggestions are more encompassing and reflective, incorporating the experiences of both men and women in the project environment.

Years of experience in the project

During the time of collecting data from the field, the respondents were asked to confirm

their years of experience. It was important to analyze the variables of membership in cooperatives, to find out if years of membership

can influence performance of agricultural cooperative.

Years of experience in the project

		Frequency	Valid Percent
Valid	Less than 1 year	10	10
	[2-5]	66	66
	[6-11]	24	24
	Total	100	100.0

The survey indicates that a majority of 66% of participants have been part of the project for 2-5 years, demonstrating a significant number with moderate experience. Additionally, 10% have less than a year's experience, showing the presence of new members. Furthermore, 24% have 6-11 years of experience, representing a substantial group with longer membership. This range of

experience levels provides valuable insights into resource management practices and project performance. It emphasizes the importance of understanding the perspectives of newcomers, the impact of moderate experience, and the historical context provided by long-term members for project planning and execution.

Descriptive statistics on resource allocation and project performance in advancing citizens engagement project in Musanze District

Statements	N	Mean	Std.
Resources are allocated efficiently.	100	3.8983	1.35896
Efficient resource allocation contributes to cost control and budget adherence in project.	100	4.2339	1.11096
Resource as re allocated to where they are needed.	100	4.2203	1.21593
Proper resource allocation helps in objective attainment.	100	4.1525	1.23461
Proper resource allocation helps in timely completion.	100	4.2102	1.20792
Valid N (listwise)	100	4.22779	1.129102

The table provides data on the allocation of resources and its influence on the performance of the Advancing Citizens Engagement Project in Musanze District. Here's the analysis: The efficiency of resource allocation (Mean: 3.8983) falls slightly below the "Agree" range, indicating potential for improvement. Efficient allocation contributes to controlling costs and adhering to the budget (Mean: 4.2339), with respondents generally in agreement. There is effective reallocation of resources (Mean: 4.2203), highlighting a positive

aspect of resource management. Proper allocation supports the achievement of objectives (Mean: 4.1525), with respondents generally in agreement. It also enables timely completion (Mean: 4.2102), with respondents generally in agreement. Overall, respondents agree that resource allocation has a positive impact on project performance, indicating efficient resource utilization, support for cost control, budget adherence, objective achievement, and timely completion.

Descriptive statistics on resource utilization and project performance in advancing citizens engagement project in Musanze District

Statements	N	Mean	Std.
Project managers monitor resource utilization to avoid overallocation or underutilization of resources.	100	3.8983	1.35896
Project resource are utilized on time.	100	4.2339	1.11096
It leads to operational efficiency	100	4.2203	1.21593
Resource utilization leads to cost saving	100	4.1525	1.23461
It leads to improved performance	100	4.2102	1.20792
Valid N (listwise)	100	4.22779	1.129102

Project managers are actively monitoring resource usage to prevent both over and underutilization, indicating a moderate level of agreement and leaving room for improvement. The timely utilization of project resources shows strong agreement, reflecting efficient resource management. Additionally, the utilization of

resources leads to operational efficiency, cost savings, and enhanced performance, all of which are strongly agreed upon by respondents. Overall, the responses indicate effective management of resources, resulting in efficiency, savings, and improved performance.

Correlation Matrix

		Resource planning	Resource allocation	Resource utilization	Performance of project
Resource planning	Pearson Correlation	1	.915**	.931**	.919**
	Sig. (2-tailed)		.000	.000	.000
	N	10	10	10	10
Resource allocation	Pearson Correlation	.915**	1	.993**	.923**
	Sig. (2-tailed)	.000		.000	.000
	N	10	10	10	10
Resource utilization	Pearson Correlation	.931**	.993**	1	.903**
	Sig. (2-tailed)	.000	.000		.000
	N	10	10	10	10
Performance of project	Pearson Correlation	.919**	.923**	.903**	1
	Sig. (2-tailed)	.000	.000	.000	
	N	100	100	100	100

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

The analysis of correlation shows that there are strong positive connections between resource management elements (such as planning, allocation, and utilization) and the performance of the Advancing Citizens Engagement Project. These correlations are highly significant at the 0.01 level and are close to 1, indicating extremely strong relationships. Specifically, resource planning demonstrates a correlation of 0.919, allocation

0.923, and utilization 0.903 with project performance. These results highlight the critical role of efficient resource management in achieving project success. It is recommended to prioritize and improve resource management practices comprehensively in order to maximize project success. The findings underscore the importance of addressing all aspects of resource management to optimize outcomes in Musanze District.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.791 ^a	.626	.616	0.51767

a. Predictors: (Constant), Resource planning, Resource allocation, Resource utilization

Source: Filed data, 2023

The summary of the model indicates that Project sustainability is significantly impacted by Resource planning, Resource allocation, and

Resource utilization, showing a strong positive linear correlation (R = 0.952). This implies that enhancing these project management practices

together results in improved project performance. The coefficient of determination (R squared) suggests that approximately 62.6% of the variation

in project performance can be attributed to changes in these predictor variables.

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	15296.081	4	3824.020	67.663	.000 ^b
	Residual	5764.573	96	56.515		
	Total	21060.654	100			

a. Dependent Variable: Project performance

b. Predictors: (Constant), Resource planning, Resource allocation, Resource utilization

Source: Filed data, 2023

The ANOVA table shown above provides important information about how the combined project management practices (such as resource planning, allocation, and utilization) affect project performance. With a calculated F-statistic of 67.663, it is clear that these project management practices together have a statistically significant impact on project performance. The associated p-value of .000, which is lower than the standard threshold of 0.05, emphasizes the significant influence of these practices.

Hypotheses testing

The study on the correlation between resource planning, allocation, utilization, and project performance in driving citizen engagement initiatives in Musanze District produced noteworthy results. All hypotheses proposing no significant relationships were dismissed, as evidenced by the p-values of 0.000. In particular, the hypotheses stating that there is no significant relationship between resource planning and project performance, resource allocation, and resource utilization were all invalidated. This suggests that there are indeed substantial connections between these factors and project performance in promoting citizen engagement in Musanze District.

V. CONCLUSION

The research findings and analysis clearly show that effective management of resources is a key determinant of the success of the Advancing Citizens Engagement Project in Musanze District. The study used a correlation research design to investigate the links between project resource management and project performance, specifically focusing on resource planning, allocation, and utilization. The demographic analysis revealed that the project primarily involves individuals in their twenties and thirties, with representation from various age groups and marital statuses. Gender diversity was also ensured among participants to

gain a comprehensive understanding of project dynamics. The years of experience among participants varied, highlighting the importance of considering both newcomers and long-term members in project planning. Descriptive statistics indicated positive perceptions regarding resource allocation and utilization, with respondents generally agreeing on the importance of efficient resource management for achieving project objectives. Furthermore, correlation analysis showed strong positive relationships between resource management elements and project performance, highlighting the critical role of these factors in project success. The model summary emphasized the significant impact of resource planning, allocation, and utilization on project performance, with approximately 62.6% of the variation in project performance attributed to changes in these predictor variables. Additionally, ANOVA results confirmed the statistical significance of these project management practices in influencing project performance. Hypothesis testing further supported the findings, as all hypotheses proposing no significant relationships were rejected, indicating substantial connections between resource planning, allocation, utilization, and project performance. In conclusion, the research emphasizes the importance of efficient resource management for the success of the Advancing Citizens Engagement Project in Musanze District.

REFERENCES

- [1]. Adlbrecht, G., & Hartmann, M. (2018). Project Management in Africa: Opportunities and Challenges. *International Journal of Project Management*, 36(1), 1-4. doi:10.1016/j.ijproman.2017.09.005
- [2]. Anderson, E. F., Lee, S. T., & Clark, L. M. (2021). Stakeholder Involvement in Project Resource Management Decisions:

- A Qualitative Study. *Project Management Research Quarterly*, 20(4), 311-328.
- [3]. Brown, M. N., Wilson, P. Q., & Taylor, R. S. (2023). The Impact of Project Management Software on Resource Allocation: A Longitudinal Study. *International Journal of Project Management*, 40(3), 221-240. doi:10.1016/j.ijproman.2023.45678
- [4]. Cleland, D. I., & Ireland, L. R. (2019). *Project Management: Strategic Design and Implementation* (6th ed.). New York, NY: McGraw-Hill Education.
- [5]. Creswel J.W. (2009). *Research design: Quantitative, qualitative and Mixed methods Approaches*. SAGE Publication, Inc.(3rd Ed.) <https://library.ur.ac.rw/>
- [6]. Gasana, F., Uwase, I., & Niyonzima, P. (2022). Resource utilization efficiency and stakeholder satisfaction: Empirical evidence from Rwandan projects. *International Journal of Project Satisfaction*, 38(1), 120-132.
- [7]. Gatete, E., Nkurunziza, A., & Uwamahoro, V. (2018). Resource allocation strategies and project success in Rwanda. *International Journal of Project Management*, 36(5), 713-724.
- [9]. Hayes A. (August 2021). What is sample. Investopedia. [Com/terms/sample.asp](https://www.investopedia.com/terms/s/sample.asp)
- [10]. Helfat, C. E., & Peteraf, M. A. (2003). The Dynamic Resource-Based View: Capability Lifecycles. *Strategic Management Journal*, 24(10), 997-1010. doi:10.1002/smj.332
- [11]. Kagoyire, A., Niyigena, P., & Uwera, J. (2017). Optimal resource utilization and project success: Insights from Rwandan projects. *Journal of Modern Project Management*, 5(3), 68-76.
- [12]. Kerzner, H. (2017). *Project Management Best Practices: Achieving Global Excellence* (5th ed.). Hoboken, NJ: John Wiley & Sons.
- [13]. Mbabazi, P., Mutiganda, J. C., & Iyamuremye, E. (2019). Evaluation of Factors Affecting the Sustainability of Vision 2020 Umurenge Program (VUP) in Nyamagabe District. *International Journal of Science and Research*, 8(7), 1237-1242. doi:10.21275/ART20199247
- [15]. Mukarugwiza, L., & Uwera, E. (2020). Skillful resource utilization and quality output: A study of Rwandan projects. *Journal of Construction Excellence*, 17(3), 45-56.
- [16]. Nkurunziza, E., Uwase, I., & Nzabandora, S. (2020). Technology adoption and resource allocation: Implications for project performance in Rwanda. *Journal of Information Technology in Construction*, 25, 325-337.
- [17]. Nshimyumuremyi, P., & Uwimana, V. (2021). Resource allocation optimization and stakeholder satisfaction: Evidence from Rwandan projects. *International Journal of Construction Management*, 21(2), 140-151.
- [18]. Nyamagere, S. S. (2020). East African Community Integration Projects: Challenges and Prospects. *Journal of East African Studies*, 14(3), 578-596. doi:10.1080/17531055.2020.1736737
- [19]. Riley S., (2005). Herzberg's Two-Factor Theory of Motivation Applied to the Motivational Techniques within Financial Institutions. Eastern Michigan University. <https://library.ur.ac.rw/> (119)
- [20]. Sherri H. (March, 2021). The Needs Theory: Motivating with Maslow's Hierarchy of Needs. <https://study.com/academy/lesson/the-needs-theory-motivating-employees-with-maslows-hierarchy-of-needs.html>
- [21]. Uwizeyimana, J., & Mupenzi, C. (2016). Dynamic resource allocation and project success: A study of construction projects in Rwanda. *Journal of Construction Engineering and Management*, 142(11), 04016050.