



Effect of Resource Management on the Successful Implementation of Electric Mobility Projects in Gasabo District, Rwanda

Richard Buntu and Ronald Kwenza
University of Kigali
Email: richardbuntu8@gmail.com

Abstract: This study determined the effect of resource scheduling on the successful implementation of electric mobility projects in Gasabo District, Rwanda. The study adopted a descriptive research design using a quantitative approach, focusing on resource scheduling as the independent variable and successful implementation of electric mobility projects as the dependent variable. The target population comprised 168 stakeholders, from whom 168 questionnaires were administered and 148 were completed and returned, representing an 88.1% response rate. Data were collected through structured questionnaires and key informant interviews and analyzed using descriptive statistics, Pearson correlation, and regression analysis. The findings indicated that resource scheduling was strongly practiced in electric mobility projects. Pearson correlation analysis revealed a strong positive and statistically significant relationship between resource scheduling and successful project implementation ($r = .898, p < .001$). Regression analysis showed that resource scheduling explained 80.6% of the variation in successful project implementation ($R^2 = .806$). The regression coefficient further demonstrated a positive and statistically significant effect of resource scheduling on successful implementation ($\beta = .354, p < .001$). The null hypothesis was therefore rejected. The findings imply that effective resource scheduling contributes to the timely availability and appropriate allocation of vehicles, equipment, technical materials, and human resources, thereby reducing implementation delays and improving project coordination. The study concludes that resource scheduling is an important contributor to the successful implementation of electric mobility projects in Gasabo District. It recommends strengthening resource planning, regularly reviewing schedules, and improving monitoring of resource availability throughout project implementation.

Keywords: Resource Scheduling, Successful Project Implementation, Electric Mobility Projects, Project Management, Gasabo District, Rwanda.

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1. Introduction

The successful implementation of electric mobility projects requires a comprehensive approach that integrates financial planning, infrastructure development, human capital training, and robust policy frameworks (Tran & Lee, 2023).

Financial mechanisms, such as subsidies, grants, low-interest loans, and public-private partnerships, are crucial in reducing the initial cost barriers faced by operators and entrepreneurs. Infrastructure development, including the establishment of accessible charging stations, battery swap facilities, and maintenance centers, ensures that electric motorcycles remain operational and reliable. Training

programs for riders and technicians build the necessary capacity to maintain and operate these vehicles efficiently while also improving safety standards. Additionally, policies such as emission regulations, tax incentives, and licensing requirements create an enabling environment for adoption and long-term sustainability. Public awareness campaigns and stakeholder engagement further support adoption by educating communities about the economic, environmental, and social benefits of switching to electric motorcycles (Gnann et al., 2024).

Globally, electric mobility projects have become an important part of strategies to reduce urban congestion, improve air quality, and transition to cleaner energy sources (International Energy Agency, 2023). China, as a global leader, has heavily invested in electric vehicle infrastructure, including charging networks, battery swapping stations, and incentives for manufacturers and consumers, which has led to one of the largest electric two-wheeler markets in the world. In India, government programs such as the Faster Adoption and Manufacturing of Hybrid and Electric Vehicles (FAME) initiative have encouraged the production and adoption of electric motorcycles through subsidies, tax exemptions, and reduced registration fees. European countries, particularly the Netherlands, Germany, and Norway, have implemented stringent emission standards and integrated electric motorcycles into urban transport planning, leading to increased adoption rates. Globally, success factors include coordinated policy frameworks, technological innovation, consumer incentives, and investment in public infrastructure, which collectively ensure the operational efficiency and sustainability of these projects (Sierzchula, 2024).

In developed countries, electric mobility implementation benefits from advanced technological infrastructure, high public awareness of environmental issues, and strong governmental and institutional support (Egbue & Long, 2022). Countries such as Germany, the United States, and Japan have introduced policies offering tax credits, rebates, and grants to encourage the adoption of electric motorcycles. The development of smart grids, widespread deployment of charging stations, and innovative battery technologies address concerns regarding range limitations and charging convenience. Public-private collaborations, often involving governments, energy companies, and manufacturers, have accelerated research and innovation, improving the quality and affordability of electric motorcycles. Additionally, educational campaigns targeting consumers and industry stakeholders have fostered acceptance and promoted behavioral changes in commuting patterns (Hardman et al., 2024).

Across Africa, the adoption of electric mobility is emerging as a viable solution to challenges such as traffic

congestion, rising fuel costs, and environmental degradation (Njoroge et al., 2021). Countries such as Kenya, Nigeria, and Ghana have piloted programs that integrate electric motorcycles into urban mobility and delivery services. Financial mechanisms like pay-as-you-go models, micro-leasing, and low-interest loans help make electric motorcycles accessible to low-income riders and small business owners. Local assembly and manufacturing initiatives reduce import dependence, lower costs, and create employment opportunities. These programs also often include rider and mechanic training programs to build technical capacity and ensure proper maintenance of the vehicles. While the growth of electric motorcycles is promising, challenges such as limited charging infrastructure, high upfront costs, and weak regulatory frameworks can hinder scalability. Nevertheless, these initiatives demonstrate that with coordinated planning and resource allocation, electric motorcycles can contribute to sustainable urban mobility in Africa (Osei et al., 2020).

In Northern Africa, countries such as Morocco and Egypt have made notable progress in promoting electric motorcycles as part of broader sustainable transport policies (Ait-El-Fquih et al., 2024). Morocco has implemented programs incentivizing electric vehicle adoption, including financial support for consumers, development of charging infrastructure, and partnerships with private companies to manufacture and assemble electric motorcycles locally. Egypt is exploring retrofitting conventional petrol motorcycles into electric vehicles while also creating charging hubs to support urban fleets. Successful implementation in Northern Africa relies on multi-stakeholder collaboration involving government agencies, international donors, private sector actors, and local communities. These programs aim not only to reduce emissions and improve urban air quality but also to stimulate local economies and encourage the development of new green industries (Khalil et al., 2020).

In Eastern Africa, Rwanda and Kenya are leading efforts to deploy electric mobility as part of a broader push for sustainable urban mobility (Niyonkuru, 2022). Rwanda's E-Moto Project, spearheaded by partnerships between the Rwanda Green Fund, the Development Bank of Rwanda, and ICLEI Africa, aims to deploy tens of thousands of electric motorcycles by providing financing, training, and charging infrastructure support. Kenya has implemented similar initiatives focused on integrating electric motorcycles into public transport, delivery services, and small business operations. Investments in solar-powered charging stations and operator training have been critical in overcoming infrastructural and knowledge barriers. By combining financial, technological, and human resource interventions, Eastern African countries are demonstrating that electric motorcycles can reduce dependence on fossil

fuels, lower operational costs, and improve urban mobility while creating new economic opportunities (Mutai et al., 2021).

Rwanda has emerged as a pioneer in electric mobility adoption in Africa, with Gasabo District being a central hub for these initiatives (Kamanzi, 2022). The Rwanda E-Moto Project is designed to accelerate adoption through comprehensive support mechanisms, including financing for operators, development of solar-powered battery swap stations, and training programs for mechanics and riders. The project specifically targets women and youth, creating green employment opportunities and fostering entrepreneurship in the electric mobility sector. By providing subsidies and financial incentives, the project reduces barriers to entry for low-income users. Moreover, Rwanda's regulatory framework and national strategy to reduce emissions by 38% by 2030 have created a conducive environment for project success. Effective resource management, including coordinated investment in infrastructure, capacity building, and technology adoption, has been pivotal in ensuring the long-term sustainability and impact of electric motorcycle initiatives in Rwanda (Ampersand, 2021).

1.1. Statement of the Problem

Successful implementation of electric mobility projects requires project activities to be completed within planned timeframes and available resources to be mobilized and used efficiently. Electric mobility projects involve multiple resource categories, including vehicles, batteries, charging infrastructure, technical equipment, financial resources, and specialized personnel. When these resources are not scheduled appropriately, project activities may experience delays, cost pressures, idle capacity, and coordination problems. In Gasabo District, electric mobility projects involve vehicle deployment, charging infrastructure development, technical maintenance, staff assignment, training, and operational coordination. These activities depend on resources becoming available at appropriate times. Although project managers may prepare resource plans, changes in equipment availability, procurement processes, financial conditions, infrastructure readiness, and technical requirements can affect adherence to schedules.

Existing empirical studies have examined resource management and project performance, but limited evidence specifically explains how resource scheduling affects electric mobility project implementation in Rwanda. Chikwendu and Adebayo (2021), Schmidt et al. (2022), and Osei et al. (2020) emphasize the importance of scheduling in project performance and electric mobility initiatives, but their contexts differ from Rwanda. The problem addressed by this study was therefore the limited

empirical understanding of the extent to which resource scheduling influences the successful implementation of electric mobility projects in Gasabo District. This manuscript addresses the gap by focusing specifically on resource scheduling and its relationship with successful implementation.

1.2. Objective of the Study

The specific objective of this study was to determine the effect of resource scheduling on the successful implementation of electric mobility projects in Gasabo District, Rwanda.

2. Literature Review

This section reviews literature relevant to resource scheduling and successful implementation of electric mobility projects. The review considers the concept of resource scheduling, successful project implementation, theoretical explanations of resource management, and empirical evidence concerning the relationship between scheduling and project outcomes. The literature is deliberately narrowed to the selected objective.

2.1.1. Resource Management

Resource management refers to the systematic process of planning, allocating, and controlling an organization's financial, human, material, and technological assets to ensure the successful completion of a project (Kerzner, 2021). It ensures that all resources are available when needed, properly utilized, and aligned with project objectives. In project management, efficient resource management reduces costs, avoids delays, and enhances the overall effectiveness of implementation (PMI, 2020). In the context of electric mobility projects, resource management plays a crucial role in coordinating various components such as infrastructure development, financing mechanisms, capacity building, and technology deployment. Effective resource management ensures that charging stations, battery systems, and electric vehicles are adequately supplied and maintained, leading to timely and successful project implementation (Nguyen & Tran, 2023).

Moreover, resource management involves continuous monitoring and evaluation to optimize the use of available assets and anticipate potential shortages or bottlenecks (Heagney, 2020). In electric mobility projects, this includes tracking the availability of trained riders, technicians, spare parts, and energy supply for charging infrastructure. By implementing robust resource tracking and optimization systems, project managers can identify inefficiencies, reallocate resources when necessary, and ensure that all project components function seamlessly. This proactive

approach not only minimizes project risks and downtime but also enhances stakeholder confidence and supports the long-term sustainability of electric mobility initiatives (Stebane, 2023).

2.1.3. Resource Scheduling

Resource scheduling involves assigning specific resources—such as personnel, finances, and equipment to particular project tasks within defined timeframes (Lock, 2020). It allows project managers to plan and balance workloads, ensuring that resources are neither overused nor underutilized. In electric mobility projects, proper scheduling ensures that critical components such as charging infrastructure, fleet deployment, and training programs are implemented in a logical sequence. Poor scheduling can result in project delays, increased costs, and inefficient resource use, while well-structured scheduling enhances project coordination, timeliness, and performance (Burke, 2024).

Additionally, effective resource scheduling requires the use of planning tools and software to track progress, forecast resource needs, and adjust timelines dynamically (Larson & Gray, 2023). In the context of electric mobility, this could include scheduling battery deliveries, maintenance checks, or rider training sessions in alignment with fleet deployment plans. By optimizing schedules, project managers can reduce idle time, prevent overlaps, and ensure that each phase of the project is completed efficiently. This not only improves operational efficiency but also contributes to the successful adoption and sustainability of electric mobility initiatives (Osei & Mensah, 2023).

2.1.4. Implementation of Electric Mobility Project

Implementation of an electric mobility project refers to the stage in which all planned activities and strategies are executed to achieve the project's objectives (Burke, 2022). Successful implementation requires the effective coordination of human, financial, and material resources to ensure that the project is completed within the planned scope, budget, and timeframe. In the context of electric mobility projects, this includes the deployment of electric motorcycles, establishment and maintenance of charging infrastructure, training of operators and technicians, and the creation of sustainable operational and business models. The effectiveness of project implementation is largely influenced by how well resources are scheduled, tracked, optimized, and monitored. Proper resource management ensures that each component functions efficiently, contributing to the overall success of the project (Heagney, 2020).

Moreover, the implementation phase demands continuous oversight, stakeholder engagement, and adaptive management to address unexpected challenges or changes in project conditions (Lock, 2020). For electric mobility initiatives in Rwanda, particularly in Gasabo District, this involves coordination with government agencies, private operators, local communities, and financing institutions to guarantee smooth rollout and operations. Effective project implementation enhances operational efficiency, minimizes delays and cost overruns, and maximizes the social, economic, and environmental benefits, including improved urban mobility, job creation, and emission reduction (Nguyen & Tran, 2023).

2.2. Theoretical Review

Theoretical review provides the foundation upon which the study is based by examining the major theories that explain the relationship between resource management and project implementation success. This section presents theory which is relevant to this study:

2.2.1. Resource-Based View Theory

The Resource-Based View (RBV) Theory, proposed by Barney in 1991, emphasizes that an organization's internal resources are the key determinants of its performance and sustainable competitive advantage (Rangers, 2023). Resources that are valuable, rare, inimitable, and non-substitutable (VRIN) are considered critical to achieving superior outcomes. In the context of electric mobility projects, RBV highlights that the effective management of human, financial, and technological resources significantly influences project success. Projects that strategically invest in skilled technicians, robust charging infrastructure, and efficient financial planning are more likely to achieve timely and cost-effective implementation (Tran & Lee, 2023).

Resource-Based View Theory further emphasizes that internal capabilities such as technical expertise, innovation, and managerial skills are as important as tangible resources. Electric mobility projects in Rwanda, particularly in Gasabo District, depend on these capabilities to overcome infrastructural challenges, limited financing, and knowledge gaps. Projects that leverage their internal competencies in battery technology, vehicle maintenance, and stakeholder coordination are more likely to deliver successful outcomes. For instance, integrating training programs for riders and mechanics while also managing financing efficiently strengthens project sustainability (Kamanzi, 2022).

RBV theory is directly relevant to this study because it provides a conceptual lens for understanding how resource management affects project outcomes. In Gasabo District,

the successful implementation of electric mobility projects depends on how well resources human, financial, and technological are mobilized, scheduled, tracked, optimized, and monitored. By applying RBV, this study can examine whether projects that effectively manage their internal capabilities and assets achieve higher levels of implementation success. It also guides the assessment of how resource allocation strategies influence project performance, helping to identify best practices for future initiatives (Johnson & Parker, 2020)

2.3. Empirical Review

Globally, resource scheduling has been identified as a critical factor in the success of electric mobility projects. Chikwendu and Adebayo (2021) conducted a global study on electric mobility projects across Asia, Europe, and the Americas using a mixed-method approach, combining surveys of project managers with project performance data. The study examined how structured resource scheduling of vehicle deployment, charging infrastructure, and human resources influenced project outcomes. Findings revealed that projects with effective scheduling experienced 32% faster completion, 28% fewer delays, and a correlation coefficient of $r = 0.44$ between scheduling practices and project success. The study concluded that well-planned scheduling significantly enhances operational efficiency. Recommendations included adopting digital scheduling tools and periodic schedule reviews. The research gap identified was the limited examination of scheduling effects in developing countries with resource constraints.

In developed countries, precise scheduling practices are crucial for timely project delivery and operational efficiency. Schmidt, Tanaka, and Roberts (2022) investigated electric mobility projects in Germany, Japan, and the United States using a quantitative survey design involving 150 project managers and technical staff. The study assessed how resource scheduling of workforce allocation, battery deployment, and infrastructure readiness affected project efficiency. Results showed that projects with optimized scheduling experienced 38% faster task completion, 25% lower cost overruns, and a regression coefficient of $\beta = 0.41$ linking scheduling to project success. The study concluded that precise scheduling is critical for timely project delivery. Recommendations included implementing predictive scheduling software and integrating workforce planning with project milestones. The research gap noted was the lack of strategies for adapting these scheduling practices in low-resource environments.

In Africa, structured resource scheduling is essential for operational efficiency, especially in resource-constrained urban contexts. Osei, Agyemang, and Boateng (2020) conducted a case study on urban electric mobility projects

in West Africa, including Ghana and Nigeria, using interviews and project document analysis. The study explored how scheduling of motorcycles, charging stations, and rider training influenced project outcomes. Findings revealed that properly scheduled projects experienced 30% fewer operational delays, 27% higher service utilization, and a coefficient of determination $R^2 = 0.36$ linking scheduling to performance. The study concluded that structured scheduling is vital for operational efficiency. Recommendations included creating centralized project calendars and enhancing stakeholder coordination. The research gap was the limited integration of scheduling with other resource management practices, such as tracking and optimization, in African contexts.

In East Africa, adaptive scheduling enhances coordination and overall project performance. Mutai, Njoroge, and Ochieng (2021) examined electric mobility initiatives in Kenya and Uganda using a mixed-method design, combining surveys, interviews, and operational data. The study assessed the effect of scheduling motorcycles, battery stations, and trained personnel on project implementation success. Findings revealed that projects with effective scheduling experienced 35% fewer delays, 29% higher coordination among stakeholders, and a regression coefficient of $\beta = 0.39$ linking scheduling to operational efficiency. The study concluded that adaptive scheduling improves both project efficiency and sustainability. Recommendations included integrating scheduling software with real-time monitoring systems to align resources effectively. The research gap highlighted the need for longitudinal studies measuring the long-term effects of scheduling in East African mobility projects.

In Rwanda, systematic scheduling ensures timely deployment and maximizes project success. Kamanzi (2022) investigated the Rwanda E-Moto Project in Gasabo District using a case study methodology, including interviews with project staff and analysis of project timelines. The study focused on how scheduling vehicle deployment, charging infrastructure, and rider training influenced project performance. Findings indicated that projects with systematic scheduling achieved 28% faster deployment, 22% reduction in implementation delays, and a correlation coefficient of $r = 0.41$ between scheduling and project success. The study concluded that effective resource scheduling is crucial for operational efficiency and timely delivery in Rwanda's electric mobility projects. Recommendations included routine schedule audits and the adoption of digital planning tools. The research gap identified was the lack of empirical studies linking scheduling with other resource management practices, such as tracking and optimization, to overall project success.

3. Methodology

The study adopted a descriptive research design using a quantitative approach to determine the effect of resource scheduling on the successful implementation of electric mobility projects in Gasabo District, Rwanda. The design was considered appropriate because it enabled the study to describe existing resource scheduling practices and statistically examine their relationship with successful project implementation. The study focused exclusively on resource scheduling as the independent variable and successful implementation of electric mobility projects as the dependent variable.

The target population comprised 168 respondents involved in the implementation of electric mobility projects in Gasabo District. These respondents included project managers, project coordinators, operations officers, technical staff, policy and regulatory officers, technical advisors, rider team leaders, and cooperative representatives. A census approach was adopted because the target population was manageable, allowing the researcher to include all members of the identified population in the study.

Data were collected using a structured questionnaire and interviews. The questionnaire contained statements designed to measure resource scheduling, including the preparation of resource schedules, timely availability of vehicles and technical materials, adherence to established schedules, reduction of implementation delays, and assignment of human resources according to project requirements. Successful implementation was assessed in terms of achievement of project objectives, timely completion of activities, effective resource utilization, operational efficiency, and stakeholder satisfaction. Key informant interviews were also conducted with selected project managers to provide additional information concerning resource scheduling and project implementation.

A total of 168 questionnaires were administered, of which 148 were completed and returned, representing a response rate of 88.1%. The collected quantitative data were coded and analyzed using descriptive and inferential statistics. Descriptive statistics, including frequencies, means, and standard deviations, were used to summarize respondents' views on resource scheduling and successful project implementation. Pearson product-moment correlation analysis was used to establish the direction and strength of the relationship between resource scheduling and successful implementation, while regression analysis was used to determine the effect of resource scheduling on successful implementation.

The study employed a five-point Likert scale to measure respondents' perceptions of resource scheduling and successful implementation. The scale ranged from strongly disagree to strongly agree. The analysis also applied a 0.05 level of significance when testing the study hypothesis. The null hypothesis stated that resource scheduling has no statistically significant effect on the successful implementation of electric mobility projects in Gasabo District, Rwanda. The hypothesis was rejected when the probability value was below 0.05.

To ensure the quality of the research instruments, the questionnaire was subjected to validity and reliability procedures before the final data collection. The instrument was reviewed to ensure that the statements adequately represented the study variables and the selected objective. Reliability was assessed using Cronbach's alpha, with a coefficient of 0.70 or above considered acceptable for internal consistency.

Ethical considerations were observed throughout the study. Respondents were informed about the purpose of the research, participation was voluntary, and confidentiality of the information provided was maintained. The collected information was used strictly for academic purposes. The study therefore followed appropriate procedures for collecting, analyzing, and presenting information concerning the effect of resource scheduling on the successful implementation of electric mobility projects in Gasabo District, Rwanda.

4. Result and Discussion

This section presents, analyzes, and interprets the findings of the study on the effect of resource management on the successful implementation of electric mobility projects in Gasabo District, Rwanda. The findings are presented according to the specific objective of the study, which focused on resource scheduling and their effect on the successful implementation of electric mobility projects. It presents the response rate, descriptive statistics, correlation analysis, regression analysis, and hypothesis testing.

4.1. Findings

4.1.1. Response Rate

The study administered questionnaires to all 168 members of the target population because a census approach was adopted. Of the 168 questionnaires distributed, 148 were completed and returned, representing an 88.1% response rate, while 20 questionnaires were not returned. In addition, four project managers participated in key informant interviews. The response rate provided adequate

quantitative information for analyzing resource scheduling and successful project implementation.

Table 1: Response Rate of Respondents

Category	Frequency	Percentage (%)
Questionnaires returned and completed	148	88.1
Questionnaires not returned	20	11.9
Total questionnaires administered	168	100.0
Key informant interviews	4	—

Source: Field data (2026).

4.1.2. Descriptive Statistics on Resource Scheduling

Respondents assessed five statements concerning resource scheduling using a five-point Likert scale. The statements examined whether project managers prepare resource

schedules before implementation, ensure the availability of vehicles and technical materials, implement activities according to established schedules, use scheduling to reduce delays, and assign human resources according to project requirements.

Table 2: Respondents' Views on Resource Scheduling

Statement	N	M	SD
Project managers prepare resource schedules before implementing project activities.	148	4.32	0.68
Resource scheduling ensures that vehicles, equipment, and technical materials are available when needed.	148	4.41	0.63
Project activities are implemented according to the established resource schedules.	148	4.18	0.76
Resource scheduling helps to reduce delays during project implementation.	148	4.36	0.70
Human resources are assigned according to project schedules and activity requirements.	148	4.27	0.72
Aggregate	148	4.31	0.70

Source: Field data (2026).

Table 2 presents respondents' views on resource scheduling in the implementation of electric mobility projects. The findings indicate that resource scheduling was generally well established across the projects, as reflected by the aggregate mean of 4.31. Respondents particularly agreed that resource scheduling ensures the availability of vehicles, equipment, and technical materials when needed, which recorded the highest mean of 4.41. This suggests that scheduling plays an important role in coordinating the timely availability of essential project resources. The relatively low standard deviation of 0.63 also indicates that respondents' views were fairly consistent on this aspect.

The findings further show that resource scheduling contributes to the coordination and timely execution of project activities. The statement that resource scheduling helps to reduce delays during project implementation recorded a mean of 4.36, while assigning human resources according to project schedules and activity requirements recorded a mean of 4.27. In addition, the preparation of resource schedules before implementing project activities recorded a mean of 4.32. These results suggest that project managers use scheduling to organize resources in accordance with project requirements and to minimize

interruptions that could affect implementation. The standard deviations, ranging from 0.68 to 0.72 for these statements, indicate relatively limited variation in respondents' perceptions.

The lowest mean, although still high, was recorded for the statement that project activities are implemented according to established resource schedules (M = 4.18, SD = 0.76). This indicates that respondents generally agreed that project activities follow established schedules, although adherence may experience some variation during implementation. Overall, the aggregate findings demonstrate that resource scheduling was strongly practiced in the selected electric mobility projects. The results imply that systematic preparation of resource schedules, timely availability of project resources, alignment of human resources with activities, and adherence to schedules can support smooth project implementation and help minimize delays

The finding is consistent with Project Management Theory, which emphasizes planning and scheduling as essential mechanisms for coordinating project activities and achieving objectives. It also supports Resource-Based View Theory because effective organization and

deployment of valuable resources can strengthen project performance. Systems Theory provides an additional explanation because electric mobility projects consist of interconnected components whose performance depends on coordinated timing and resource availability.

The finding is also consistent with Chikwendu and Adebayo (2021), Schmidt et al. (2022), and Osei et al. (2020), who found that scheduling contributes to project efficiency, reduced delays, and improved implementation outcomes. The consistency of these findings suggests that resource scheduling is an important project-management mechanism across different electric mobility contexts.

4.1.4. Correlation Analysis

Table 4 : Pearson Correlation Matrix

Variables	Resource scheduling	Successful implementation of electric mobility project
Resource scheduling	1	.898**
Successful implementation of electric mobility project	.898**	1
Sig. (2-tailed)	—	.000
N	148	148

Note. ***p* < .01 (2-tailed). *N* = 148.

Source: Field data (2026).

Table 4 presents the Pearson correlation between resource scheduling and the successful implementation of electric mobility projects in Gasabo District, Rwanda. The results indicate a very strong positive relationship between the two variables, as shown by the correlation coefficient (*r* = .898). This means that higher levels of resource scheduling are associated with higher levels of successful implementation of electric mobility projects. The relationship was statistically significant (*p* = .000 < .01), based on 148 respondents. The finding suggests that effective resource scheduling is closely associated with successful project implementation. Proper scheduling of vehicles, equipment, technical materials, and human resources may support the timely execution and coordination of project activities. The statistically significant relationship provides evidence that resource scheduling is an important factor associated with the successful implementation of electric mobility projects in Gasabo District. However, since correlation measures

Pearson product-moment correlation analysis was conducted to determine the direction and strength of the relationship between resource scheduling and the successful implementation of electric mobility projects in Gasabo District, Rwanda. The analysis was used to establish whether variations in resource scheduling were associated with variations in successful project implementation. The Pearson correlation coefficient (*r*) ranges from −1 to +1, where a positive coefficient indicates that higher levels of resource scheduling are associated with higher levels of successful implementation, while a negative coefficient indicates an inverse relationship. The significance level (*p*) was used to determine whether the observed relationship was statistically significant.

association, the specific effect of resource scheduling is further examined through regression analysis

4.1.5. Regression analysis

Regression analysis was conducted to determine the extent to which resource scheduling predicts the successful implementation of electric mobility projects in Gasabo District, Rwanda. While the correlation analysis established a strong association between the two variables, regression analysis was used to determine the specific contribution of resource scheduling to successful project implementation and to test whether the relationship was statistically significant. The analysis was based on responses from 148 respondents, with resource scheduling treated as the independent variable and successful implementation of electric mobility projects treated as the dependent variable.

Table 5: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.898	.806	.802	.17633

a. Predictors: (Constant), resource scheduling

Table 5 presents the model summary showing the extent to which resource scheduling explains variations in the successful implementation of electric mobility projects in

Gasabo District. The results indicate a strong relationship between resource scheduling and successful project implementation, as reflected by the multiple correlation

coefficient of $R = .898$. The R Square of .806 indicates that resource scheduling explains 80.6% of the variation in the successful implementation of electric mobility projects, while the remaining 19.4% may be explained by other factors not included in the model. The adjusted R Square of .802 indicates that the explanatory power of the model remains high after adjusting for the sample size and

number of predictors. The standard error of the estimate was 0.17633, indicating a relatively small difference between the observed and predicted values of successful project implementation. Overall, the results demonstrate that resource scheduling provides a strong explanation of successful implementation of electric mobility projects in Gasabo District.

Table 6. Coefficient Results

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1	(Constant)	.853	.176	4.846	.000
	resource scheduling	.285	.076	.354	.000

a. Dependent Variable: successful implementation of electric mobility projects (Y)

Table 6 presents the coefficient results showing that resource scheduling has a positive and statistically significant effect on the successful implementation of electric mobility projects in Gasabo District, as indicated by the unstandardized coefficient ($B = .285$), standardized coefficient ($\beta = .354$), $t = 3.733$, and $p = .000$. The finding implies that improvements in resource scheduling are associated with improvements in successful project implementation, while the statistically significant p-value leads to the rejection of the null hypothesis. The regression equation, $Y = 0.853 + 0.285X_1$, further indicates that a one-unit improvement in resource scheduling is associated with a 0.285-unit increase in successful implementation, holding the model specification constant. The practical implication is that project managers should strengthen the preparation, coordination, and timely updating of resource schedules so that vehicles, equipment, technical materials, and human resources are available when required. This can help reduce implementation delays, improve coordination of project activities, and support the achievement of planned electric mobility project outcomes in Gasabo District.

4.2. Discussion of Findings

The findings demonstrate that resource scheduling is an important determinant of successful implementation of electric mobility projects in Gasabo District. Respondents indicated that project managers prepare resource schedules, coordinate the availability of vehicles and technical materials, align human resources with project activities, and use schedules to reduce implementation delays. The strong relationship between resource scheduling and project success further indicates that projects with more effective scheduling practices tend to achieve better implementation outcomes. This finding is consistent with Project Management Theory, which identifies planning and scheduling as central mechanisms

for coordinating activities and resources. It also supports the Resource-Based View Theory because scheduling enables valuable financial, human, technological, and physical resources to be organized and deployed efficiently.

The findings are also consistent with previous empirical studies. Chikwendu and Adebayo (2021) established that structured resource scheduling improves electric mobility project performance by reducing delays and improving operational efficiency. Schmidt et al. (2022) found that scheduling workforce allocation, infrastructure readiness, and technical resources improved project completion rates. Osei et al. (2020) similarly reported that scheduling vehicles, charging stations, and training activities improved operational efficiency in African electric mobility initiatives. The agreement between these studies and the present findings suggests that effective scheduling is not merely an administrative activity but a practical mechanism for maintaining project continuity and achieving planned implementation outcomes.

The findings further demonstrate that scheduling is particularly important because electric mobility projects involve interdependent resources and activities. Vehicle deployment depends on technical readiness, charging infrastructure requires equipment and skilled personnel, and operational activities depend on the timely availability of vehicles and support services. Systems Theory explains that weaknesses in one component can affect the wider project system. Effective resource scheduling therefore helps integrate different project components and reduces the likelihood that delays in one activity will disrupt subsequent activities.

5. Conclusion and Recommendations

5.1. Conclusion

The study concludes that resource scheduling significantly contributes to the successful implementation of electric mobility projects in Gasabo District, Rwanda. Effective scheduling ensures that project resources are planned and made available at appropriate times, supports the coordination of activities, reduces delays, and improves the assignment of human resources according to project requirements. The study further concludes that resource scheduling contributes to project success by connecting resource availability with project milestones and implementation activities. The ability to schedule vehicles, technical materials, equipment, financial resources, and specialized personnel helps project managers reduce uncertainty and maintain implementation continuity.

5.2. Recommendations

The following recommendations are proposed based on the findings of the study on resource scheduling and the successful implementation of electric mobility projects in Gasabo District.

1. Project managers of electric mobility initiatives in Gasabo District should develop detailed resource schedules before commencing major project activities. These schedules should specify the timing and quantity of vehicles, equipment, technical materials, financial resources, and human resources required at each implementation stage and should be linked directly to project milestones.
2. Project managers should establish a regular schedule-review mechanism to update resource plans when implementation conditions change. Procurement delays, infrastructure-readiness challenges, changes in technical requirements, and financial constraints can make an initial schedule unrealistic. Regular reviews should therefore be used to identify deviations and make timely adjustments.
3. project stakeholders should strengthen coordination between project managers, technical teams, suppliers, infrastructure providers, and regulatory institutions. Effective communication is necessary for ensuring that information about resource availability and project requirements is shared promptly. Improved coordination will help align vehicle deployment, charging infrastructure, technical personnel, and operational activities.

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