



Influence of Project Scheduling on the Timely Completion of the Rwandan Urban Development Project Phase in Musanze District, Rwanda

Bill Kamurase Deusdedit & Ruth Odengo
University of Kigali
Email: billdeusdedit2013@gmail.com

Abstract: This study assessed the influence of task identification on the timely completion of the Rwanda Urban Development Project Phase II (RUDP II) in Musanze District, Rwanda. The study adopted a mixed-methods approach using a descriptive and correlational research design. The target population comprised 230 project personnel, from which a sample of 146 respondents was determined using Yamane's formula. Stratified and purposive sampling techniques were used. Data were collected through questionnaires, interviews, and documentary review and analyzed using SPSS Version 25. Descriptive statistics, Pearson correlation, and simple linear regression were used for quantitative analysis, while qualitative data were analyzed thematically. Descriptive findings indicated that task identification was generally well practiced, particularly in defining activities, sequencing tasks, assigning responsibilities, reducing confusion, and ensuring stakeholder understanding. Pearson correlation showed a strong positive and statistically significant relationship between task identification and timely project completion ($r = 0.844$, $p = 0.000$). Regression analysis showed that task identification significantly influenced timely completion and explained 71.3% of the variation in project completion ($R^2 = 0.713$, $F = 297.762$, $\beta = 0.844$, $p = 0.000$). The study concluded that effective task identification contributes substantially to timely project completion. It recommends clearly identifying and documenting tasks, establishing task sequences and dependencies, and assigning clear responsibilities to project personnel and stakeholders.

Keywords: Task Identification, Project Scheduling, Timely Completion, RUDP II, Musanze District, Rwanda.

How to cite this work (APA):

Bill Kamurase Deusdedit, B. K. & Odengo, R. (2026). Influence of Project Scheduling on the Timely Completion of the Rwandan Urban Development Project Phase in Musanze District, Rwanda. *Journal of Research Innovation and Implications in Education*, 10(3), 1459 – 1470. <https://doi.org/10.59765/dpr6>

1. Introduction

Project scheduling is a fundamental component of project management that focuses on defining the sequence of activities, allocating timeframes, and ensuring optimal utilization of resources to achieve project objectives within the planned duration (Kerzner, 2022). It provides a clear roadmap that guides project implementation by outlining when tasks should start and finish, as well as identifying dependencies among activities. Effective scheduling enhances coordination among project stakeholders,

improves communication, and allows for continuous monitoring and control of project progress. Through tools such as Gantt charts, Critical Path Method (CPM), and Program Evaluation and Review Technique (PERT), project managers are able to anticipate potential delays and take corrective actions in advance. Poor scheduling, on the other hand, often results in project delays, increased costs, and inefficient use of resources, which negatively affect project performance and success. Therefore, proper scheduling is essential for ensuring that projects are

completed on time and within budget while maintaining quality standards (PMI, 2022).

Globally, project scheduling has increasingly been recognized as a key determinant of timely project completion across various sectors, including construction, infrastructure development, manufacturing, and information technology (Oscar, 2022). Many projects around the world experience delays due to ineffective scheduling practices, inadequate planning, and lack of proper coordination among stakeholders. In both developed and developing countries, poor scheduling has been linked to time overruns, budget escalation, and reduced project quality. International organizations such as the World Bank and the Project Management Institute emphasize the importance of proper scheduling in enhancing project efficiency and sustainability. Effective scheduling enables project managers to allocate resources appropriately, identify critical activities, and manage risks that may affect project timelines. As a result, projects that adopt strong scheduling practices are more likely to achieve their objectives within the stipulated timeframe and deliver expected outcomes (World Bank, 2021).

In developed countries such as the United States, the United Kingdom, and Germany, the use of advanced project scheduling techniques and modern technologies has significantly improved project performance and timely completion (Gray & Larson, 2022). These countries have well-established institutional frameworks, skilled professionals, and access to sophisticated project management tools that facilitate accurate planning and scheduling of project activities. The integration of digital tools such as project management software and real-time monitoring systems allows for better tracking of project progress and quick identification of potential delays. Additionally, strong regulatory environments and adherence to project management standards ensure that projects are executed efficiently and within the planned schedule. As a result, project delays are minimized, and overall project success rates are higher compared to many developing regions (Schwalbe, 2020).

In Western Asia, particularly in countries such as the United Arab Emirates and Saudi Arabia, project scheduling plays a crucial role in managing large-scale infrastructure and construction projects (Bekr, 2024). These projects are often complex and involve multiple stakeholders, making effective scheduling essential for coordination and timely execution. Despite significant investments in technology and project management practices, delays are still common due to issues such as frequent changes in project scope, inadequate planning, and weak scheduling practices. In many cases, poor communication among stakeholders and lack of proper monitoring systems further contribute to

project delays. However, efforts are being made to improve scheduling practices through the adoption of advanced technologies and better project management approaches, which are expected to enhance project performance in the region (Al-Momani, 2020).

In Sub-Saharan Africa, project delays continue to be a major concern, particularly in infrastructure and development projects (Twinne, 2022). These delays are often associated with weak project scheduling practices, limited technical expertise, and inadequate resource allocation. Many projects in the region suffer from poor planning and lack of effective monitoring systems, which hinder timely completion. Additionally, external factors such as funding delays, political interference, and logistical challenges further complicate project implementation. The absence of reliable scheduling tools and trained personnel exacerbates the problem, leading to inefficiencies and increased project costs. Strengthening project scheduling practices is therefore critical for improving project performance and ensuring that development initiatives achieve their intended objectives (Doloi, 2023).

In East African countries such as Kenya, Uganda, and Tanzania, project scheduling has become an area of growing concern due to frequent delays in both public and private sector projects (Munyano, 2022). Ineffective scheduling practices, inadequate planning, and lack of skilled personnel are among the key factors contributing to these delays. In many cases, projects are initiated without comprehensive schedules, resulting in poor coordination and inefficient use of resources. Governments and development partners in the region are increasingly emphasizing the importance of adopting modern project scheduling tools and techniques to improve project outcomes. By enhancing planning, monitoring, and coordination, effective scheduling can significantly contribute to the timely completion of projects and improve overall project performance (Ofori, 2025).

In Rwanda, significant progress has been made in project implementation, particularly in infrastructure and urban development initiatives aimed at promoting economic growth and improving service delivery (MININFRA, 2022). The government has placed strong emphasis on effective project management practices, including project scheduling, as part of its national development strategy to enhance efficiency and ensure successful project outcomes. Nevertheless, despite these efforts, some projects continue to experience delays due to challenges such as inadequate planning, weak coordination among stakeholders, and inefficient allocation of resources. Additionally, limited technical capacity and unforeseen external factors further constrain timely project execution. Addressing these challenges requires strengthening project scheduling

practices and enhancing the capacity of project managers to improve time management and overall project performance (NISR, 2023). In this context, projects such as the Rwanda Urban Development Project Phase II (RUDP II) clearly illustrate the critical role of effective scheduling in achieving timely completion, as they involve complex and interdependent activities, including road construction, drainage systems, and urban infrastructure development, which demand careful planning and coordination. Delays in such projects can lead to increased costs, reduced efficiency, and adverse effects on service delivery and urban development, thereby underscoring the importance of proper sequencing of activities, efficient resource utilization, and proactive risk management (World Bank, 2021; RTDA, 2022).

1.2 Statement of Problem

Timely completion is a critical indicator of successful project implementation because projects are expected to deliver their planned activities and outputs within the approved implementation period (Kim, 2022). Project scheduling provides an important basis for achieving timely completion by systematically identifying, sequencing, and assigning timeframes to project activities and coordinating the resources required for implementation. Effective scheduling enables project managers to establish realistic timelines, monitor progress, identify deviations, and undertake corrective actions before delays significantly affect project completion. This is particularly important in urban infrastructure projects such as the Rwanda Urban Development Project Phase II (RUDP II), where construction activities are complex, interdependent, and implemented within defined schedules (PMI, 2021).

Despite the importance of effective scheduling, delays continue to affect the completion of infrastructure and urban development projects. Globally, project delays have been associated with weaknesses in planning, coordination, resource availability, monitoring, and risk management (Flyvbjerg, 2024). In Sub-Saharan Africa, infrastructure projects continue to experience implementation delays associated with weaknesses in project management practices, including inadequate planning, resource constraints, weak monitoring mechanisms, and ineffective management of project risks (AfDB, 2020). In Rwanda, although significant efforts have been made to strengthen infrastructure development and project implementation, delays in public infrastructure projects remain a concern because they can increase implementation costs, affect the efficient use of resources, and postpone the delivery of expected services and infrastructure benefits (MININFRA, 2022). These challenges demonstrate the need for effective

scheduling practices that can support projects to remain within their planned implementation timelines.

Although previous studies have examined factors influencing project performance and completion, limited empirical attention has been given to the specific influence of project scheduling practices on timely project completion in the Rwandan context. Existing studies have largely examined broader project management issues such as budgeting, stakeholder management, resource management, governance, and general project planning and control, with less emphasis on examining task identification, resource allocation, schedule monitoring and control, and risk management as distinct dimensions of project scheduling in relation to timely completion. Studies by Turner (2024), Pinto (2020), Love et al. (2025), and Casey (2023) provide useful evidence on project planning, control, governance, financial management, and resource capacity, but do not sufficiently establish how the specific scheduling dimensions examined in this study influence timely completion of urban infrastructure projects in Rwanda.

Consequently, there is a contextual and empirical gap concerning the extent to which task identification, resource allocation, schedule monitoring and control, and risk management influence the timely completion of RUDP II in Musanze District. Without such evidence, project managers, implementing agencies, and policymakers may have limited empirical guidance on which scheduling practices require greater attention to minimize delays and improve adherence to planned project timelines. Therefore, this study sought to assess the influence of project scheduling on the timely completion of the Rwanda Urban Development Project Phase II (RUDP II) in Musanze District, Rwanda, with specific focus on task identification, resource allocation, schedule monitoring and control, and risk management

This study sought to achieve the following research objective:

To assess the influence of task identification on the timely completion of Rwanda Urban Development Project (RUDP II) in Musanze District, Rwanda

2.1 Literature Review

This section reviews literature related to project scheduling and task identification in relation to timely project completion. It provides a conceptual basis for understanding how project activities are planned, defined, sequenced, and coordinated to support completion within the planned timeframe. Particular attention is given to task

identification because it is the specific scheduling practice examined in this study of RUDP II in Musanze District.

2.1.1 Project Scheduling

Project scheduling is a fundamental aspect of project management that involves the planning, sequencing, and timing of project activities to ensure that project objectives are achieved within the specified timeframe (Turner, 2022). It provides a structured framework that outlines when tasks should start and finish, the order in which activities should be performed, and how resources should be allocated throughout the project lifecycle. Effective project scheduling enhances coordination among stakeholders, improves time management, and ensures that project activities are executed in an organized and systematic manner (Schwalbe, 2020).

Project scheduling incorporates various tools and techniques such as Gantt charts, Critical Path Method (CPM), and Program Evaluation and Review Technique (PERT), which help project managers to visualize timelines, identify critical activities, and allocate resources efficiently (Lailey, 2024). These tools enable the identification of the critical path, which determines the minimum time required to complete a project. By focusing on critical activities, project managers can prioritize tasks and take proactive measures to prevent delays. As noted by Jeffrey Pinto (2020), effective scheduling not only improves project control but also enhances decision-making by providing clear insights into project progress and potential risks. Furthermore, project scheduling plays a crucial role in ensuring timely project completion by facilitating continuous monitoring and control of project activities. It allows project managers to track progress against planned timelines, identify deviations, and implement corrective actions where necessary. In complex projects such as infrastructure and urban development initiatives, proper scheduling is essential for managing interdependencies among tasks and ensuring that resources are utilized efficiently. Poor scheduling, on the other hand, often leads to delays, increased costs, and reduced project performance (Gray & Larson, 2023).

In addition, project scheduling is closely linked to other project management functions such as risk management, resource allocation, and stakeholder coordination. It provides a basis for anticipating potential challenges and developing mitigation strategies to address them. Effective scheduling ensures that project risks are managed proactively and that all stakeholders are aligned with the project timeline. Therefore, project scheduling is not only a planning tool but also a strategic mechanism for enhancing project efficiency, minimizing delays, and ensuring successful project delivery (Meredith, 2024).

2.1.2 Task identification

Task identification is a critical component of project scheduling that plays a significant role in ensuring the timely completion of projects (Kaman, 2024). It involves breaking down the overall project into specific, manageable activities that can be clearly defined, sequenced, and executed within a given timeframe. Proper task identification ensures that all necessary activities are captured and aligned with the project objectives. According to Turner (2024), effective task identification goes beyond listing activities, as it requires structuring tasks in a logical and systematic manner to enhance coordination and efficiency in project implementation.

Effective task identification also requires a clear understanding of the project scope and stakeholder requirements (Dumba, 2022). In infrastructure and urban development projects such as the Rwanda Urban Development Project Phase II (RUDP II), project managers must carefully define all tasks involved, including planning, design, construction, and supervision. Pinto (2020) emphasizes that well-defined tasks improve clarity among project team members, enhance coordination, and reduce misunderstandings that may lead to delays. When tasks are clearly identified, it becomes easier to assign responsibilities and ensure that all project participants are working towards a common goal.

Furthermore, task identification contributes to improved project scheduling and overall project performance by enabling accurate sequencing of activities and effective resource allocation. Schwalbe (2020) notes that poorly defined tasks often result in duplication of efforts, omission of important activities, and inefficiencies that can delay project completion. Similarly, Gray and Larson (2024) argue that clear task identification enhances monitoring and control, allowing project managers to track progress and take corrective actions where necessary. Therefore, effective task identification is essential for minimizing delays and ensuring the timely completion of projects.

2.2 Theoretical Review

This section presents the theoretical foundations that underpin the study on project scheduling and timely project completion. It highlights key theories that explain how effective planning, coordination, and control of project activities contribute to achieving project objectives within the planned timeframe. These theories provide a framework for understanding the relationship between project scheduling practices and timely completion of projects.

2.2.1 Critical Path Theory

Critical Path Theory was developed by James E. Kelley and Morgan R. Walker in 1959 as a project management technique aimed at improving the planning and scheduling of complex projects (Jensen, 2024). The theory focuses on identifying the sequence of activities that determine the minimum time required to complete a project, commonly referred to as the critical path. It emphasizes that certain activities are critical, meaning that any delay in these tasks directly affects the overall project completion time. This approach has been widely adopted in project management to enhance scheduling efficiency, improve coordination of project activities, and strengthen control over project timelines (Stewards 2024).

The theory explains that projects are composed of interrelated activities, each with defined durations and dependencies that must be carefully analyzed during the planning phase (Heller, 2022). Through the identification of these relationships, project managers are able to determine which activities must be completed on time to avoid delays in the entire project. Critical Path Theory also facilitates effective sequencing of tasks and helps in estimating realistic project durations. In addition, it supports the use of scheduling tools such as network diagrams and Gantt charts, which enable project managers to visualize workflows, monitor progress, and identify potential bottlenecks. This enhances decision-making and allows for timely corrective actions when deviations from the schedule occur (Harris, 2021).

This theory is directly linked to the objectives of this study, particularly task identification and schedule monitoring and control in the Rwanda Urban Development Project Phase II (RUDP II) in Musanze District. It provides a strong foundation for understanding how proper identification, sequencing, and monitoring of project tasks influence timely completion. By focusing on critical activities and continuously tracking their progress, project managers can minimize delays, improve coordination, and ensure adherence to project schedules. Therefore, the theory supports this study by explaining how effective scheduling practices contribute to the timely completion of infrastructure and urban development projects.

3. Methodology

The study adopted a descriptive and correlational research design using a mixed-methods approach. The descriptive design was considered appropriate because it enabled the researcher to describe the existing level of task identification in the Rwanda Urban Development Project Phase II (RUDP II) in Musanze District. The correlational

design was employed to determine whether a significant relationship exists between task identification as the independent variable and timely completion of RUDP II as the dependent variable without manipulating the variables. The mixed-methods approach combined quantitative data obtained through questionnaires with qualitative information collected through interviews to provide a comprehensive understanding of the influence of task identification on the timely completion of the project.

The target population consisted of 230 respondents, including project managers, engineers, site supervisors, technical staff, and other project personnel involved in the implementation of RUDP II in Musanze District. These groups were selected because they were directly involved in project planning and implementation and could provide relevant information concerning the identification, definition, sequencing, and organization of project tasks and their contribution to timely project completion. Using Yamane's (1973) formula at a 5% margin of error, the study determined the required sample size of 146 respondents. Stratified sampling was used to ensure representation of the different categories of project personnel, while purposive sampling was applied to select respondents with direct knowledge and experience of project scheduling and task identification.

The study collected both primary and secondary data. Primary data were obtained through a structured questionnaire administered to selected RUDP II project personnel and semi-structured interviews conducted with selected key stakeholders involved in project planning and implementation. The questionnaire collected quantitative information on task identification and timely completion of the project, while interviews provided qualitative information concerning how project activities were identified, defined, sequenced, assigned, and coordinated and how these practices contributed to timely completion. Secondary data were obtained through documentary review of project schedules, work plans, progress reports, project implementation reports, monitoring reports, and other relevant records relating to RUDP II.

The principal research instruments were a structured questionnaire and interview guide. The questionnaire contained closed-ended and Likert-scale statements designed to measure task identification and timely completion of RUDP II. The task identification items focused on the clear definition of project activities, breakdown of activities into manageable tasks, sequencing of activities, identification of task dependencies, and assignment of responsibilities. The timely completion items focused on adherence to planned timelines, completion of activities within the scheduled period, reduction of delays, and achievement of project milestones

as planned. The interview guide contained open-ended questions that enabled key stakeholders to provide detailed information about task identification practices and their contribution to timely project completion. Before the main data collection exercise, a pilot study involving 30 individuals from a similar project context outside the study area was conducted to identify ambiguous questions and improve the instruments. Content validity was assessed through expert evaluation, while Cronbach's Alpha was used to determine the internal consistency reliability of the instruments.

The collected data were analyzed using the Statistical Package for Social Sciences (SPSS) Version 25. Quantitative data were summarized using descriptive statistics, including frequencies, percentages, means, and standard deviations. Inferential statistics were used to examine the relationship and influence of task identification on timely project completion. Specifically, Pearson correlation analysis was used to establish the strength and direction of the relationship between task identification and timely completion, while simple linear regression analysis was used to determine the influence of task identification on timely completion of RUDP II. Qualitative data obtained from interviews were analyzed thematically by organizing responses into meaningful themes related to task identification and timely project completion. Since the study focused specifically on one independent variable, the analytical model was expressed as:

$$Y = \beta_0 + \beta_1 X_1 + \varepsilon$$

Where:

Y = Timely completion of project

β_0 = Constant

β_1 = Regression coefficient

X_1 = Task identification

ε = Error term

Finally, the study observed ethical considerations throughout the research process by obtaining approval from the University of Kigali and securing a formal introductory letter to facilitate access to the Rwanda Urban Development Project Phase II in Musanze District. Participation was voluntary, informed consent was obtained from all respondents, confidentiality and anonymity were maintained, and respondents were

informed of their right to withdraw from the study at any stage. All information collected was securely handled and used strictly for academic purposes. These ethical principles protected the rights, privacy, and dignity of participants throughout the research process.

4. Results and Discussion

This section presents the findings and discussion on the influence of task identification on the timely completion of RUDP II in Musanze District, Rwanda. The findings are based on the study objective and are presented using descriptive and inferential analyses.

4.1 Findings

This section presents the findings of the study on the influence of task identification on the timely completion of the Rwanda Urban Development Project Phase II (RUDP II) in Musanze District, Rwanda. The findings are presented based on the study objective, which was to assess the influence of task identification on the timely completion of RUDP II. The analysis focuses specifically on task identification as the independent variable and timely completion of the project as the dependent variable. Quantitative findings are presented using descriptive and inferential statistics, while qualitative findings from interviews are used to complement and explain the quantitative results.

4.1.1 Response rate

The study targeted a total sample size of 146 respondents. Of these respondents, 130 questionnaires were administered to technical staff and other project staff involved in the implementation of the Rwanda Urban Development Project Phase II (RUDP II) in Musanze District, representing 89.0% of the total sample. Out of the 130 questionnaires distributed, 122 were successfully completed and returned, yielding a response rate of 93.8%. However, 8 questionnaires were not returned, representing 6.2% of the distributed questionnaires. In addition, 16 key informants comprising one Project Manager, ten Engineers, and five Site Supervisors were interviewed. These respondents were purposively selected because of their direct involvement in project planning, scheduling, implementation, supervision, and monitoring of the Rwanda Urban Development Project Phase II.

Table 1: Response Rate of Respondents

Response Rate	Frequency	Percentage (%)
Questionnaires Returned	122	93.8
Questionnaires Not Returned	8	6.2
Total	130	100

Source: Field Data, 2026

The high response rate indicates a strong level of participation among respondents and provides sufficient data for reliable analysis and interpretation. According to Mugenda and Mugenda (2003), a response rate of 70% and above is considered very good for analysis. Therefore, the response rate of 93.8% achieved in this study was excellent and adequate for drawing valid conclusions regarding the influence of project scheduling on the timely completion of the Rwanda Urban Development Project Phase II (RUDP II) in Musanze District, Rwanda.

This section presents the descriptive statistics on task identification as the first independent variable of the study. The analysis was based on respondents' perceptions regarding how task identification influences the timely completion of the Rwanda Urban Development Project Phase II (RUDP II) in Musanze District, Rwanda. Respondents were requested to indicate their level of agreement with five statements relating to task identification using a five-point Likert scale where 1 = Strongly Disagree (SD), 2 = Disagree (D), 3 = Neutral (N), 4 = Agree (A), and 5 = Strongly Agree (SA).

4.1.2 Descriptive Statistics of Task Identification

Table 2: Level of agreement of Task Identification

Statements	N	Mean	Std.
Project activities are clearly identified before implementation begins.	122	4.5	0.68
Project tasks are properly sequenced according to priorities.	122	4.3	0.74
Responsibilities for project tasks are clearly assigned to staff.	122	4.2	0.77
Task identification helps reduce confusion during project implementation.	122	4.4	0.71
All project stakeholders understand the assigned project activities.	122	4.1	0.81
Overall Mean and Standard Deviation	122	4.3	0.74

Source: Field data, 2026

Table 2 presents respondents' views regarding task identification and its influence on the timely completion of the Rwanda Urban Development Project Phase II (RUDP II). The findings indicate that respondents strongly agreed that project activities are clearly identified before implementation begins, with a mean score of 4.50 and a standard deviation of 0.68. This suggests that project managers ensure that project activities are well defined before implementation starts, enabling project teams to understand the work to be accomplished and reducing uncertainty during project execution.

The findings further show that respondents strongly agreed that task identification helps reduce confusion during project implementation, as indicated by a mean score of 4.40 and a standard deviation of 0.71. This implies that clearly defining project activities enables project personnel to understand their respective responsibilities, thereby minimizing misunderstandings and promoting smooth implementation of project activities. Similarly, respondents agreed that project tasks are properly sequenced according to priorities, with a mean score of

4.30 and a standard deviation of 0.74. Proper sequencing of project activities ensures that interdependent tasks are carried out in the correct order, thereby reducing interruptions and enhancing workflow efficiency throughout project implementation. The results also indicate that responsibilities for project tasks are clearly assigned to staff, with a mean score of 4.20 and a standard deviation of 0.77. Clear assignment of responsibilities enhances accountability among project personnel, facilitates coordination, and enables each team member to perform assigned duties within the planned schedule. Furthermore, respondents agreed that all project stakeholders understand the assigned project activities, with a mean score of 4.10 and a standard deviation of 0.81. This demonstrates that stakeholders possess adequate understanding of their respective roles and responsibilities, thereby enhancing communication, collaboration, and coordination during project implementation.

The overall mean score of 4.30 and a standard deviation of 0.74 indicate that respondents generally agreed that effective task identification significantly contributes to the

timely completion of the Rwanda Urban Development Project Phase II (RUDP II). The relatively low standard deviation further indicates consistency in respondents' opinions, implying that respondents shared similar perceptions regarding the importance of task identification in improving project implementation and minimizing delays.

The qualitative findings obtained from interviews further supported the quantitative results. The Project Manager explained that task identification is undertaken during the planning stage by breaking the project into specific activities, assigning responsibilities to project teams, and establishing implementation priorities before construction begins. According to the respondent, this approach enables project staff to understand the scope of work and improves coordination throughout the implementation process.

One Engineer indicated that proper sequencing of project activities helps technical teams execute tasks in a logical order, thereby minimizing unnecessary interruptions and avoiding delays caused by poor coordination. The respondent further explained that clearly defining activities before implementation facilitates efficient supervision and enables engineers to monitor progress more effectively. Similarly, a Site Supervisor reported that clearly assigned responsibilities improve accountability among project staff because every team member understands the activities to be completed and the expected timelines. The respondent added that proper task identification minimizes confusion at construction sites and enables supervisors to resolve implementation challenges promptly whenever they arise.

A common theme emerging from the interviews was that effective task identification improves communication, strengthens coordination among project teams, enhances accountability, and minimizes implementation delays. Respondents consistently emphasized that projects with clearly defined and properly sequenced activities are more likely to achieve timely completion than projects where activities are poorly defined or inadequately coordinated.

The findings of the present study are consistent with those of Bradley (2022), who found that projects with clearly identified and well-structured activities were more likely to be completed within the planned schedule because proper task identification enhanced coordination and improved project efficiency. Similarly, the respondents in the current study agreed that identifying project activities before implementation and assigning responsibilities to project personnel contributed significantly to the timely completion of the Rwanda Urban Development Project Phase II (RUDP II).

The findings also support those of Adebayo (2023), who established that proper identification and sequencing of project activities significantly improved project implementation and reduced delays across development projects in Africa. The study reported that projects which clearly defined their activities during the planning stage experienced fewer implementation challenges and better adherence to project schedules. Likewise, respondents in the present study acknowledged that effective task identification reduced confusion during implementation and enhanced coordination among project personnel. Furthermore, the findings agree with those of Nashit, Abas, and Mushi (2020), who found that clearly defined project tasks and proper sequencing improved coordination and reduced implementation delays in development projects across Tanzania and Kenya. Their study concluded that effective task planning enhances project efficiency and facilitates timely completion. Similar observations were made in the present study, where respondents indicated that proper sequencing of project activities enhanced workflow efficiency and contributed to completing project activities according to schedule.

The findings are further explained by the Critical Path Theory, which guided this study. The theory emphasizes that successful project implementation depends on identifying project activities, establishing their logical sequence, and determining the critical activities that directly influence project completion time. In the context of the Rwanda Urban Development Project Phase II (RUDP II), proper task identification enabled project managers to organize project activities systematically, assign responsibilities appropriately, monitor implementation effectively, and minimize unnecessary delays. Therefore, the findings support the proposition of the Critical Path Theory that effective identification and sequencing of project activities are fundamental for ensuring the timely completion of infrastructure projects.

4.1.4 Correlation Analysis

Pearson correlation analysis was conducted to determine the strength and direction of the relationship between task identification and timely completion of the Rwanda Urban Development Project Phase II (RUDP II) in Musanze District, Rwanda. The analysis was appropriate because both variables were measured using composite scores derived from Likert-scale items. The Pearson correlation coefficient (r) ranges from -1 to +1, where a positive coefficient indicates that an increase in task identification is associated with an increase in timely completion, while a negative coefficient indicates an inverse relationship. The significance level was assessed at the 5% level

Table 3: Correlation between independent variable and dependent variable

		Task identification	Timely Completion of project
Task identification	Pearson	1	
	Correlation		
	Sig. (2-tailed)		
	N	122	
Timely Completion of project (Y)	Pearson	.844**	1
	Correlation		
	Sig. (2-tailed)	.000	
	N	122	122

Source: Field data, 2026

The Pearson correlation results in Table 3 indicate a strong, positive, and statistically significant relationship between task identification and timely completion of RUDP II ($r = 0.844$, $p = 0.000$, $N = 122$). This means that effective task identification is associated with better timely completion of the project. Clearly defining, sequencing, and assigning project tasks can improve coordination, reduce omissions and delays, and help project teams adhere to planned schedules. The finding therefore implies that strengthening task identification practices can contribute to the timely completion of RUDP II in Musanze District.

4.1.5 Regression analysis

Simple linear regression analysis was conducted to determine the influence of task identification on the timely completion of the Rwanda Urban Development Project (RUDP II) in Musanze District, Rwanda. The analysis was used to establish the extent to which changes in task identification explain variations in timely project completion. The regression results were interpreted using the model summary, ANOVA, and regression coefficients.

Table 4. Model summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.844 ^a	.713	.710	.22704

a. Predictor: (Constant), Task identification (X1)

The results in Table 4 indicate that the correlation coefficient ($R = 0.615$) shows a positive relationship between project capacity building and livelihood transformation of households. The coefficient of determination ($R^2 = 0.379$) indicates that 37.9% of the variation in household livelihood transformation is explained by project capacity building. The adjusted R^2 of 0.377 confirms that approximately 37.7% of the variation remains explained after adjustment for the predictor in the model. The findings imply that project capacity building makes an important contribution to household livelihood transformation, although other factors not included in the model account for the remaining 62.1% of the variation. This suggests that training, coaching, mentoring, and skills development can contribute to improving household livelihoods, but livelihood transformation is also influenced by other socio-economic and project-related factors

Table 5. ANOVA Results

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	15.348	1	15.348	297.762	.000 ^b
	Residual	6.185	120	.052		
	Total	21.534	121			

a. Dependent Variable: Timely Completion of project (Y)

b. Predictors: (Constant), Task identification (X1)

The results in Table 5 show that the regression model was statistically significant, with an F-value of 297.762 and a significance value of 0.000, which is below the 0.05 level of significance. This indicates that task identification significantly predicts the timely completion of RUDP II in Musanze District. The findings imply that effective

identification, definition, sequencing, and organization of project tasks contribute significantly to keeping project activities on schedule. Therefore, strengthening task identification practices can help project teams improve coordination, minimize delays, and enhance the timely completion of RUDP II.

Table 8. Regression Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.206	.204		1.012	.313
	Task identification	.935	.054	.844	17.256	.000

a. Dependent Variable: Timely Completion of project

The results in Table 8 show that task identification has a positive and statistically significant influence on the timely completion of RUDP II ($B = 0.935$, $\beta = 0.844$, $t = 17.256$, $p = 0.000$). The positive coefficient indicates that improvements in task identification are associated with improvements in timely project completion. The standardized beta coefficient of 0.844 indicates a strong contribution of task identification to timely completion. The finding implies that clearly defining, organizing, sequencing, and assigning project tasks can improve coordination and adherence to planned schedules. Effective task identification can also help project teams identify activity dependencies and minimize delays during implementation. Therefore, strengthening task identification practices is important for supporting the timely completion of RUDP II in Musanze District.

4.2 Discussion of Findings

The objective of this study was to assess the influence of task identification on the timely completion of the Rwanda Urban Development Project Phase II (RUDP II) in Musanze District, Rwanda. The descriptive findings indicate that task identification was generally well practiced in RUDP II. Respondents particularly recognized the clear identification of project activities before implementation, proper sequencing of tasks, clear assignment of responsibilities, reduction of confusion, and understanding of assigned activities among stakeholders. These practices provide project teams with a clear work structure, improve coordination, and support the orderly implementation of project activities.

The correlation and regression findings further demonstrate that task identification is closely associated with timely project completion and makes an important contribution to keeping RUDP II activities on schedule. The correlation analysis showed a strong positive relationship between the two variables, while the regression analysis confirmed that task identification significantly predicts timely completion. This suggests that properly identifying, sequencing, and assigning project tasks can reduce omissions, improve coordination, clarify responsibilities, and minimize delays during implementation.

The findings are consistent with Bradley (2022), who found that clearly identified and structured project activities improve coordination and support completion within planned schedules. They also agree with Adebayo (2023), who reported that proper identification and sequencing of activities reduce implementation delays, and Nashit, Abas, and Mushi (2020), who found that clearly defined tasks and proper sequencing improve project coordination and efficiency. These findings are further supported by the Critical Path Theory used in this manuscript, which emphasizes identifying project activities, establishing their logical sequence, and determining activities that influence the overall completion time. In practice, identifying task dependencies and sequencing activities provides the basis for controlling the project schedule and preventing delays to activities that can affect the completion date.

5. Conclusion and Recommendations

5.1 Conclusion

The study concluded that task identification plays an important role in the timely completion of the Rwanda Urban Development Project Phase II (RUDP II) in Musanze District, Rwanda. Clearly identifying project activities, properly sequencing tasks, assigning responsibilities, and ensuring that stakeholders understand their activities provide a structured basis for project implementation. Effective task identification improves coordination among project teams, reduces confusion, and helps project activities remain aligned with the planned schedule. The study therefore concludes that strengthening task identification practices can contribute to minimizing delays and supporting the timely completion of RUDP II.

5.2 Recommendations

Based on the study findings on the influence of Project Scheduling on the Timely completion of the Rwandan Urban Development Project Phase in Musanze district, Rwanda, the following recommendations are the following:

1. RUDP II project managers should ensure that project activities are clearly identified and broken

down into specific tasks before each implementation phase begins. This should include documenting all required activities in the project work plan to minimize confusion and omission of important tasks.

2. Project engineers and site supervisors should establish and document the sequence and dependencies of tasks before implementation. This will ensure that dependent activities are undertaken in the correct order and help prevent delays resulting from poorly coordinated activities.
3. RUDP II project managers should assign clear responsibility for each identified task and communicate these assignments to all relevant stakeholders. Regular task briefings should be conducted so that each staff member and stakeholder understands their specific responsibility and expected activity, thereby improving accountability and coordination.

References

- Adebayo, T. O. (2023). Project activity identification and sequencing in development projects: Implications for implementation efficiency in Africa. *African Journal of Project Management*, 8(2), 45–58.
- African Development Bank. (2020). *African economic outlook 2020: Developing Africa's workforce for the future*. African Development Bank.
- Bradley, J. R. (2022). Task identification and project schedule performance in development projects. *International Journal of Project Management Studies*, 14(3), 112–126.
- Canny, D. M. (2024). Schedule monitoring and control practices and timely completion of construction projects. *Journal of Construction Project Management*, 11(1), 66–79.
- Casey, R. T. (2023). *Project governance, planning, and implementation performance*. Routledge.
- Cohen, L., Manion, L., & Morrison, K. (2020). *Research methods in education* (8th ed.). Routledge.
- Dumba, P. M. (2022). Project scope definition and task identification in infrastructure development projects. *Journal of Project Planning and Development*, 9(2), 34–48.
- Evans, R. K., & Miller, J. P. (2023). Project control systems, monitoring, and implementation performance. *International Journal of Project Management Research*, 15(2), 91–105.
- Flyvbjerg, B. (2024). *How big things get done: The surprising factors that determine the fate of every project, from home renovations to space exploration*. Currency.
- Gray, C. F., & Larson, E. W. (2024). *Project management: The managerial process* (8th ed.). McGraw Hill.
- Habimana, J. (2021). Risk management practices and performance of public infrastructure projects in Rwanda. *Rwanda Journal of Engineering and Technology*, 5(2), 77–89.
- Harris, R. L. (2021). *Project scheduling and critical path analysis: Principles and applications*. Springer.
- Heller, M. J. (2022). Project activity dependencies and schedule performance in complex projects. *Journal of Project Management Practice*, 10(3), 51–64.
- Jensen, P. A. (2024). Critical path theory and contemporary project scheduling practices. *International Journal of Project Planning*, 12(1), 23–37.
- Jones, M. R., & Harris, P. L. (2023). Project scheduling practices and performance in infrastructure development. *Journal of Construction Management*, 18(4), 201–215.
- Kagina, E. (2021). Task definition, activity sequencing, and implementation timelines in development programmes in Rwanda. *Rwanda Journal of Development Studies*, 7(2), 88–101.
- Kaman, J. M. (2024). Task identification and timely completion of development projects. *Journal of Project Management and Development*, 13(1), 29–42.
- Kate, M. R. (2024). *Project scheduling and time management in development projects*. Palgrave Macmillan.
- Lailey, J. P. (2024). *Project scheduling tools and techniques: Gantt charts, CPM, and PERT*. Sage Publications.
- Love, P. E. D., Matthews, J., Sing, C.-P., & Smith, J. (2025). Project planning, governance, and performance in infrastructure delivery.

Engineering, Construction and Architectural Management, 32(2), 345–362.

Meredith, J. R. (2024). *Project management: A managerial approach*. Wiley.

Ministry of Infrastructure. (2022). *Annual report 2021/2022*. Government of Rwanda.

Nashit, A., Abas, M., & Mushi, A. (2020). Project task planning, sequencing, and implementation efficiency in development projects in Tanzania and Kenya. *East African Journal of Project Management*, 6(1), 41–55.

Paterson, D. L. (2022). *Project task identification and work breakdown structures*. Routledge.

Peterson, R. J., & Clark, S. M. (2024). Project scheduling and performance management in infrastructure projects. *International Journal of Project Management Studies*, 16(2), 73–87.

Pinto, J. K. (2020). *Project management: Achieving competitive advantage* (5th ed.). Pearson.

Schwalbe, K. (2020). *Information technology project management* (9th ed.). Cengage Learning.

Stewards, R. T. (2024). *Critical path theory and project scheduling*. Springer.

Turner, J. R. (2022). *Handbook of project-based management: Leading strategic change in organizations* (5th ed.). McGraw Hill.

Turner, J. R. (2024). *Handbook of project-based management: Leading strategic change in organizations* (5th ed.). McGraw Hill.

Williams, D. A., & Carter, P. M. (2023). Project planning and scheduling practices in infrastructure development. *International Journal of Construction Management*, 23(5), 821–835.