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Effect of Project Planning on the Success of Construction Projects in Nyarugenge District: A Case of Fair Construction Ltd

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Abstract

This study examined the Effect of project planning on the success of construction projects in Nyarugenge district with a case of Fair construction Ltd. The target population for this study was 400 employees of Fair construction Ltd and the sample size was 200 employees. Study used descriptive statistics and inferential statistics, both qualitative and quantitative were used to analyse the data with assistance of SPSS software program version 25.0 descriptive statistics and inferential statistics were used to present frequencies tables, percentages, mean and standard deviation and Inferential analysis was used in order to use Pearson correlation and multiple regression model to test the relationship between the independent variables and dependent variable. Qualitative and quantitative analysis used descriptive statistics in order produce frequency tables, percentages and mean. Inferential statistics were used in order to use person correlation and multiple regression models to test and draw relationship between variables both for independent and dependent; the influence of communication during planning on success of construction projects in Nyarugenge District. The overall means of results was 4.50, the effects of resource scheduling on the on success of construction projects in Nyarugenge. The overall means of results was 4.42, and the effect of Human resource planning on success of construction projects in Nyarugenge District. The overall means of results was 4.31, the data of Success of project was analyzed, the overall means of results was 4.52, depending on the results, it presented that the success of construction projects was on good grades. It revealed that the relationship between Project planning and success of construction project between Communication, Resource scheduling, Human Resource planning and success of project was 0.947, 0.881, and 0.932 respectively, and the results presented than the variables were statistically significant with p value=0.000b. The results presented the variables of Project planning, the results on Communication was statistically significant with p value=0.000b, the Human resource planning was statistically significant with p value=0.016b and the Resource scheduling was not statistically significant with p value=0.987b. It concluded that there was a significant relationship between Project planning and Success of project. The study recommended that MINIFRA should sensitize Rwandan

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citizen to be involved in well planned project of Construction activities in order to earn money thus self-economy enhancement.

Keywords: *Project Planning, Success of Construction Projects, Nyarugenge District, Fair Construction Ltd, Rwanda.*

1. Introduction

Project planning is that situation and preliminaries before implementation of a project include the activities which are undertaken to determine the project scope, defining targets and setting the path of action required to attain the goals (PMI., Construction extension to the PMBOK® guide, 2018), the planning phase counts the numbers of steps and encompassing project initiation, definition and appraisal, also includes analysis and evaluation steps (Kihoro, M. W., Waiganjo, E. , 2015). Project planning should be owed 20-30% of time needed to execute the project; however, inadequacy consideration is taken on project planning that led to the problems of delays, increase of unnecessary costs and in turn probable lowering of the expected project success, inefficient project planning, lack of effective resource scheduling and poor communication resulted into failure when the aim was success (Boru. Gituro , Mwawasi, Kwatsima; Seboru, Durdyev, S., Omarov, M., Ismail, S., 2017).

Most of managers spend time planning on how to meet the objectives however, it ends up not completing it in agreed time due to the challenges encountered of projects falling into delay and in turn, causes problem to human capital and financial resources (Kennedy, M.N., Waruhiu, P.K. , 2017). Time allocated on project planning can increase the chances of risks to the project (Wang, Y.-R. Gibson, G. E., 2008) the critical constraints are not met due to seldom project delays, thus cost overruns, however ,failure to construction projects end up into extension of work and affect completion to come beyond time set in initial and cost estimation (Alaghbari, Kadir, Salim ,Ernawati; Gündüz, Nielsen ,Özdemir; Mahamid, Bruland,Dmaidi,Alaghbari, W., Kadir, M.R.A., Salim, A., Ernawati, 2017).

The studies of (Morris P.W.G., 2002), (Terry Cooke- Davies. , 2014), (Lianying Zhang, Weijie Fan., 2013) studied on effects of project planning practices on project performance and found out that scanty planning and analysis leads to a failed project . (Joshua., 2017) emphasized that the critical predictors of project success include resources, quality standards, financial resources and management capabilities affect the success of the project of the construction project. Different studies have attempted to examine the different project management practices affecting residential construction projects' performance. Time and cost are two critical indicators of project success; however, it has been found that 9 out of 10 projects experience cost overruns (Flyvbjerg, B., Skamris Holm, M., Buhl, S., 2014), and the cost overruns can be as high as 183% (Odeck, J., 2014), suggesting that the project management practices are not effective. Therefore, researches and came up with gaps in their findings not attaining planning and achieve success it is in this way, the researcher thought to fill the gap by conducting a study.

1.1 Objectives of the Study

1.1.1 General Objective

The general objective of this research was to assess the effect of project planning on success of construction projects in Nyarugenge district with a case of Fair construction Ltd.

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1.1.2 Specific Objectives

(i) To assess the influence of communication during planning on success of construction projects in Nyarugenge District

(ii) To determine the effect of resource scheduling on the on success of construction projects in Nyarugenge

(iii) To Ascertain the effect of Human resource planning on success of construction projects in Nyarugenge District

1.2 Research Hypothesis

H_{01}= There is no significant influence of communication during planning and success of construction projects in Nyarugenge District

H_{02}= There is no significant effect of resource scheduling on the on success of construction projects in Nyarugenge

H_{03} = There is no significant effect of Human resource planning and success of construction projects in Nyarugenge District

2.1 Empirical Review

(Telsang, B.M , Raymond M. H , 2014) studied project planning process and its effect on performance of the project in India. Descriptive research design was used. This study targeted projects in India. The study found that planning gives a definition of the actions as well as activities, targets of cost and time, and milestones of performance, which will bring about successful project implementation as well as project objectives achievement. The study also found that the plan must make an indication of the human resources, equipment, materials, facilities, as well as other resources that are essential to ensure project completion. Devoting resources and making timely planning does not always guarantee that a desired goal wasachieved. It hardly works that way since the unanticipated more often take place regardless of how scrupulous the process of planning

In another study to investigate the influence of effective strategic project planning on the success of the Agaseke Project in Kigali by (Umulisa, A., Mbabazize, M., Shukla, J., 2015), it was found that project planning contributed to the success of the project. The findings of the study underscored the role of effective human capital planning practices on the success of the project. It was evident that project performance was influenced by a significant positive correlation with project member's training and teamwork. Additionally, it was observed that financial planning had a significant positive correlation with project performance, highlighting budgeting, forecasting, and money generation as the key financial planning activities. Furthermore, material and time planning practices, including order placement, placed orders monitoring, and planned projects influenced the success of the project. The study highlighted the different facets of planning that could significantly influence the success of construction projects.

(Alias, Z., Zawawi, E. M. A., Yusof, K., Aris, N. M., 2014) identified 5 variables of project performance through a literature review and it has specifically focused on project execution phase. (Zidaneet., 2015) identified 9 delay factors in the Norwegian construction industry through a qualitative study but with a fairly large sample. "Management and coordination", "quality issues and errors", "administration and bureaucracy", "decision issues" and "waiting" were the top five delay factors. The first two were important to all parties, the other three were more important for contractors and subcontractors, less to the clients and sponsors.

(Gudienė, N., Banaitis, A., Banaitienė, N., & Lopes, J., 2013) presented a conceptual model with 71 factors for construction projects in Lithuania. It has described 7 major groups of factors. 20 factors causing the failure of construction projects in Vietnam were identified by (Nguyen , Chileshe., 2013) through research and out of them top-ten factors were classified into 4 categories. This research established that, despite the all-round renovation process undertaken in Vietnam, the construction industry is still plagued by the same critical factors as identified from eight studies spanning a period of eight years from 2004-2012. The major critical factors were associated with knowledge and technical issues. Moreover, the result obviously proves that the biggest problem leading Vietnam construction projects to failure are issues associated to project management elements. They have gone beyond other researches mentioned above in term of composite (lecturers of universities, managers, consultants, designers and site supervisors) however their sample size was relatively small to represent variance of perception.

(Obegi, D. O. Kimutai, G. J. , 2017) study on the effects of resource scheduling on the performance of NGO projects in Nairobi City County highlighted that effective resource scheduling is one of the central project success factors. The study findings highlighted that the occasional monitoring of budget to assess expenses vis-à-vis project budgets, project changes during implementation, equipped project staff, and periodic project performance assessment. The project performance was influenced by resource scheduling because it ensured that the project was operating within budget and the changes are made to adapt to the dynamic nature of the projects, and the staff had what was needed for the job.

(Ochenge, M. D., 2018) conducted a study to examine how the performance of road infrastructure projects was affected by the various project management practices in Kenya's Lake Basin Region. The study findings highlighted that the performance of the road infrastructure projects was considerably affected by project risk management, project resource mobilization, group dynamics management, and project monitoring and evaluation. The findings further underscored the meditational role of organizational structure between project success and project management practices. As such, (Ochenge, M. D., 2018) study highlights the centrality of project management practices, specifically project resource mobilization, group dynamics management, and M&E, on project performance

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2.2 Conceptual framework

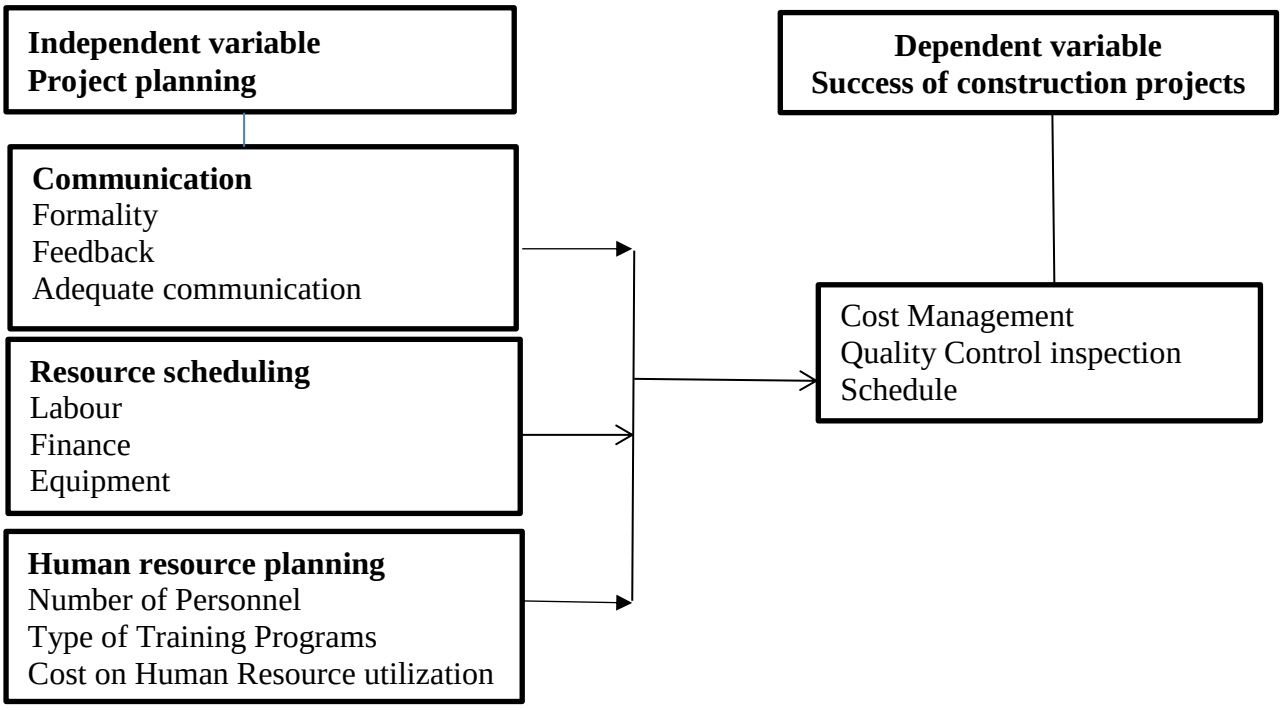

Figure 1: Conceptual framework of the study
Source: Researcher, 2023

2.3 Research Gap

Several studies were conducted on the Effect of project planning on the success of construction projects, the reviewed researches were specifying on the local problems of their original countries for example the Effect of project planning on the success of construction projects, (Umulisa, A., Mbabazize, M., Shukla, J., 2015) found that project planning contributed to the success of the project, (Obegi, D. O. Kimutai, G. J. , 2017) study on the effects of resource scheduling on the performance of NGO and they did not focus on project planning towards project success and all relevant studies that were conducted related to the project diversification some relations to the study but on in the right of Effect of project planning on the success of construction projects. The researchers did not refer on general construction, therefore in combination of all gaps found in the reviewed empirical literature, the research gap was discovered and pointed out, (Ochenge, M. D., 2018) conducted a study to examine how the performance of road infrastructure projects was affected by the various project management practices however the author forget to mention planning influencing the project success thus the research gap was identified which this research seeks to address , therefore, it with this regard the study generally will fill the gap through conducting research on Effect of project planning on the success of construction projects in Nyarugenge District with a case of Fair Construction Ltd.

3. Materials and Methods

The research design for this study is descriptive research which incorporated both qualitative and quantitative approaches. Employing a descriptive research design in this study aimed to observe and understand the factors influencing the success of construction projects through appropriate case study methodologies. The research adopts a mixed-methods approach,

utilizing qualitative techniques such as interviews and quantitative methods like correlational design to establish relationships between variables. Hence, the study population comprises employees of Fair Construction Ltd involved in its construction projects. With a focus on infrastructure development, including road construction, housing, energy, and water resources, the company stands as a prominent construction firm in Rwanda. The target population of 400 employees, including managers, technical staff, and supporting staff, forms the basis for a simple random sampling technique to select a sample size of 200 respondents.

Data collection involves obtaining permission from Fair Construction Ltd's Human Resource and Administration department. The methods employed include questionnaires, interviews, and documentary reviews. Questionnaires, administered through a structured written sequence, enable the collection of quantitative data, while interviews provide qualitative insights. Documentary reviews involve scrutinizing company documents, policies, legal papers, and reports for secondary data. Piloting was conducted to ensure the reliability and consistency of the research instruments. The pilot study revealed a Cronbach's alpha coefficient of 0.832, indicating a high level of internal consistency among respondents. Validity was ensured through expert reviews of the questionnaire content, confirming its relevance to the research study.

Therefore, data processing involves the use of SPSS for analysis. Descriptive statistics, including frequency tables, charts, percentages, and mean, will be employed to present the characteristics of the data. Inferential statistics, such as Pearson correlation tests and multiple regression analysis, will be utilized to establish relationships between independent and dependent variables. The study acknowledges certain limitations, including the researcher's status as a young professional pursuing a master's degree, potential language barriers, errors in questionnaire completion, and potential delays in data collection. Ethical considerations involve obtaining informed consent, ensuring confidentiality and anonymity, and using the collected information solely for research purposes.

4.1 Presentation of findings

The researcher underwent and used distribution of respondents' Likert scale ratings for several schemes which proved and managed to show frequencies, percentages, the mean, and the standard deviation. It is in this regard, Means was taken as descriptive statistical variable that fall into using the varying intervals and equivalences: It is recognized that mean ranging from 1.0 to 1.80, the mean is very low, and the fact is not noticeable. From 1.81 to 2.60, the mean is low and the fact appears less; 2.61 to 3.40 implies that there is some truth; 3.41 to 4.20 shows that there is a high mean and it is evidence of existence of the fact; 4.21 to 5.0 indicates very high mean that there is extremely strong evidence of the fact's existence. SD greater than 0.5 it is determined that responses were heterogeneous and if it is less than or equal to 0.5, the responses were homogeneous.

4.1.1 The influence of communication during planning on success of construction projects in Nyarugenge District

The first analyzed objective was to assess the influence of communication during planning on success of construction projects in Nyarugenge District. The detailed results are presented in the table as follow.

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Table 4.1 the influence of communication during planning on success of construction projects in Nyarugenge District

	Mean	SDv
Project material and implementing organization always are well communicated during construction process	4.16	0.81
There is generally a good feeling about how communication is done at the project	4.12	0.61
Project communication is treated with confidentiality	4.52	0.50
The project line of command is well understood by all parties involved in the project	4.67	0.47
The project has a clearly defined communication plan	4.74	0.50
Communication is done in a way that allows for future reference	4.80	0.40
Overall Mean	**4.50**	

Source: Primary data, 2023

Table 4.1 presents the first specific objective findings related to the influence of communication during planning on success of construction projects in Nyarugenge District. On the Project material and implementing organization always are well communicated during construction process, the respondents 93(46.5%) agreed, 74(37.0%) strongly agreed that was Project material and implementing organization always are well communicated during construction process with (mean=4.16 which is high, SD=0.81 heterogeneous). On there, there is generally a good feeling about how communication is done at the project, the responses showed that 122(61.0%) of respondents agreed while 51(25.5%) strongly agreed with this statement and evidenced that there was generally a good feeling about how communication is done at the project (mean=4.12 which is very high, SD=0.61). On there, Project communication is treated with confidentiality, 51(48.5%) agreed and 103(51.5%) strongly agreed that there was Pproject communication is treated with confidentiality with (mean=4.52 which is very high, SD=0.50 more heterogeneous), therefore a significant majority of respondents 51(48.5%) agreed, and, 103(51.5%) strongly agreed with this statement. There was evidence that, the project line of command is well understood by all parties involved in the project (mean=4.67 which is very high, SD=0.47 more homogeneous). A significant respondents 48(24.0%) 58(98.3) reported agree while the majority respondent 51(75.5%)1(1.7%) reported strongly agree that there was the project line of command is well understood by all parties involved in the project. On there, the project has a clearly defined communication plan, 48(24.0%) reported agreed and51 (75.5%) strongly agreed that there was project line of command is well understood by all parties involved in the project with (mean=4.74 which is very high, SD=0.50).

On there, Communication is done in a way that allows for future reference, 41(20.5) reported agree and 159(79.5) strongly agreed that there was Communication is done in a way that allows for future reference with (mean=4.80 which is very high, SD=0.40). Therefore, the overall means of results was 4.50 that is between Agree and Strongly Agree it presents that there was influence of communication during planning on success of construction projects in Nyarugenge District

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4.1.2 The effect of resource scheduling on the on success of construction projects in Nyarugenge

The second analyzed objective was the effect of resource scheduling on the on success of construction projects in Nyarugenge. The detailed results are presented in the table as follow.

Table 4.2: The effect of resource scheduling on the on success of construction projects in Nyarugenge

	Mean	SDv
	M	SD
The project manager was able to forecast expenses in line with resource scheduling	4.70	0.45
Appropriate material was provided in order to meet planned resource scheduling	4.39	0.48
Resource Schedules were well developed (prepared) based on scope of construction project	4.36	0.48
The project was completed on the original(planned) schedule	4.12	0.58
Effective allocation and division of work among the available personnel affects project performance	4.41	0.49
Clearly setting roles for the individuals, teams, tasks, or departments improve the performance of the project	4.59	0.49
Overall Mean	**4.42**	

Source: Primary data, 2023

Table 4.2 presents the second specific objective findings related to effect of resource scheduling on the on success of construction projects in Nyarugenge. On there, Appropriate material was provided in order to meet planned resource scheduling, the of respondents 60(30.0%) agreed, 140(70.0%) strongly agreed that there was appropriate material was provided in order to meet planned resource scheduling (mean=4.70 which is very high, SD=0.45). On there, Resource Schedules were well developed (prepared) based on scope of construction project, the responses showed that 128(64.0%) of the respondents agreed, and 72(36.0) strongly agreed with this statement that there was resource Schedules were well developed (prepared) based on scope of construction project with (mean=4.36 which is very high, SD=0.48). On there, the project was completed on the original(planned) schedule, in such that proportion of respondents128(64.0%) agreed, while 48(24.0%) strongly agreed with this statement that there was the project was completed on the original(planned) schedule, (mean=4.12 which is very high, SD=0.58 more heterogeneous). On there, Effective allocation and division of work among the available personnel affects project performance,119(59.5) agreed and 81(40.5) strongly agreed that there was effective allocation and division of work among the available personnel affects project performance with (mean=4.41 which is very high, SD=0.47 more homogeneous).

On there, clearly setting roles for the individuals, teams, tasks, or departments improve the performance of the project, 83(4.15%) agreed and 117(58.5) strongly agreed that there was clearly setting roles for the individuals, teams, tasks, or departments improve the performance of the project (mean=4.59 which is very high, SD=0.49). Therefore, the overall means of results was 4.42 that is between Agree and Strongly Agree it presents that there was effect of resource scheduling on the on success of construction projects in Nyarugenge.

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4.1.3 The effect of Human resource planning on success of construction projects in Nyarugenge District

The third analyzed objective was the effect of Human resource planning on success of construction projects in Nyarugenge District.The study wanted to assess the effect of Human resource planning on success of construction projects in Nyarugenge District, the detailed results are presented in the table as follow.

Table 4.3. The effect of Human resource planning on success of construction projects in Nyarugenge District

	Mean	SDv
Human resource department is majorly involved in the company's planning process	4.49	0.50
The formulation and implementation of human resource training are in line with overall goal	4.67	0.47
The human resource management function is accorded an important role	4.45	0.49
All resources were allocated (qualified personnel and infrastructure)	4.02	0.85
Training was done to project team members	4.10	0.91
Project managers were involved in planning stage	4.17	0.84
Overall Mean	**4.31**	

Source: Primary data, 2023

Table 4.3 presents the first specific objective findings related to the effect of Human resource planning on success of construction projects in Nyarugenge District. The respondents evidenced that human resource department is majorly involved in the company's planning process, respondents 102(51.0%) reported agreed, 98(49.0%) strongly agreed that was human resource department is majorly involved in the company's planning process, with (mean=4.49 which is very high, SD=0.50). On there, the formulation and implementation of human resource training are in line with overall goal, 66(33.0%) agreed and 134(67.0%) strongly agreed that there was the formulation and implementation of human resource training are in line with overall goal with (mean=4.67 which is very high, SD=0.47). On there, the human resource management function is accorded an important role, 11(55.5) reported agree and 89(44.5) strongly agreed that there was human resource management function is accorded an important role with (mean=4.45 which is very high, SD=0.49 more homogeneous).

On there, all resources were allocated (qualified personnel and infrastructure, 99(49.5) agreed and 72(36.0) strongly agreed that there was resources were allocated (qualified personnel and infrastructure with (mean=4.02 which is high, SD=0.85 more heterogenous). On there, Training was done to project team members, 99(49.5%) reported agree and 72(36.0%) strongly agreed that there was training was done to project team members with (mean=4.10 which is high, SD=0.91). On there, Project managers were involved in planning stage with significant of respondents 61(30.5%) agreed and 87(43.5%) strongly agreed that there was pproject managers were involved in planning stage with (mean=4.17 which is high, SD=0.84 more heterogeneous). Therefore, the overall means of results was 4.31 that is between Agree

and Strongly Agree it presents that there was effect of Human resource planning on success of construction projects in Nyarugenge District.

4.2.4 Success project

Researcher analyzed the factors of success of project, the results were presented in the table as follow.

Table 4.4: Success project

	Mean	SDv
	M	SD
The project output delivered product met the specifications in the planning stage	4.25	0.97
Quality control inspection work was performed towards project success	4.30	0.45
Project cost was well estimated and managed ensuring project success	4.27	0.44
Activity duration was well estimated for running the project success	4.65	0.53
Success of construction project was delivered due to proper planning	4.63	0.54
The project communication is used to ensure effective project success	4.40	0.49
Adequate and timely feedback boost project performance	4.60	0.49
Information management contribute to the project success	4.29	0.45
Project success is influenced by clarity information	4.79	0.74
Budget allocation ensure implement project activities in the overall project management cost	4.90	0.43
Timely Proper human resource feedback ensure project success	4.65	0.58
Successful project completion undergoes proper allocation of project facilities	4.60	0.70
Overall Mean	**4.52**	

Source: Primary, 2023

Table 4.4 presents data on the success of project, with specific items focusing on the project output delivered product met the specifications in the planning stage with proportion of respondents 60(30.0%) agree, and 105(52.5%) strongly agreed that there was the project output delivered product met the specifications in the planning stage with (mean=4.25 which is high, SD=0.97 more heterogeneous). It was evidenced that Quality control inspection work was performed towards project success demonstrated a significant proportion 140(70.0%) reported agree and 60(30.0%) strongly agreed that there was Quality control inspection work was performed towards project success (mean=4.30 which is high, SD=0.45 more homogeneous). On there, Project cost was well estimated and managed ensuring project success,146 (73.0%) agreed 54(27.0%) strongly agreed that there was project cost that was well estimated and managed ensuring project success (mean=4.27which is high, SD=0.44 more homogeneous). It was evidenced that Activity duration was well estimated for running the project success, respondents 67(33.5%) agreed and 132(66.0%) strongly agreed that Activity duration was well estimated for running the project success with (mean=4.65 which is very high, SD=0.53 more heterogeneous). On there, the project communication is used to ensure effective project success, 121(60.5%) agreed and 79(39.5) strongly agreed that there was the project communication is used to ensure effective project success on (mean=4.40 which is very high, SD=0.49 more homogeneous). On there, adequate and timely feedback boost project performance 81(40.5%) agreed and 57(28.5%) strongly agreed that there was adequate and timely feedback boost project performance on (Mean=4.60 which is very high, SD=0.49 more homogeneous).

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On there was Information management contribute to the project success,143 (71.5%) agreed and 57(28.5) strongly agreed that there was information management contribute to the project success on (mean=4.29 which is high, SD=0.45 more homogeneous). On there, Project success is influenced by clarity information, (0%) agreed and 184(92.0%) strongly agreed that there was project success is influenced by clarity information on (mean=4.79 which is very high, SD=0.74 more heterogeneous). It was evidenced that , Budget allocation ensure implement project activities in the overall project management cost, 10(5.0%) agreed and 90(95.0) strongly agreed that there was Budget allocation ensure implement project activities in the overall project management cost on (mean=4.90 which is very high, SD=0.43 more homogeneous).On there, Timely Proper human resource feedback ensure project success, 46(23.0%) agreed and 143(7.15%)strongly agreed that Timely Proper human resource feedback ensure project success on (mean=4.65 which is very high, SD=0.58 heterogeneous).On there, Successful project completion undergoes proper allocation of project facilities 48(24.0%)agreed and 139(69.5) strongly agreed that there was Successful project completion undergoes proper allocation of project facilities on (mean=4.60 which is very high, SD=0.70 heterogeneous). The overall means of results was **4.52** that are between Agree and Strongly Agree it presents that there was success of project.

4.2 Inferential Statistics

This section presents the findings from inferential statistical test including correlation coefficient and multiple linear regression analysis between independent variable and dependent variables in this research study.

4.2.1 Correlation

Table:4.5 Correlations

		Communication	Resource Scheduling	Human Resource Planning	Success Project
Communication	Pearson Correlation	1			
	Sig. (2-Tailed)				
	N	200			
Resource Scheduling	Pearson Correlation	.909**	1		
	Sig. (2-Tailed)	.000			
	N	200	200		
Human Resource Planning	Pearson Correlation	.964**	.949**	1	
	Sig. (2-Tailed)	.000	.000		
	N	200	200	200	
Success Project	Pearson Correlation	.947**	.881**	.932**	1
	Sig. (2-Tailed)	.000	.000	.000	
	N	200	200	200	200

**. Correlation Is Significant At The 0.01 Level (2-Tailed).

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Source: Primary data, 2023

The results present the relationship between the effect of project planning on the success of construction projects in Nyarugenge district. A case of Fair construction Ltd**.** Project planning factor taken are project planning factors taken are; Communication, resource scheduling and Huaman resource planning. It is in this regard,

The statistical package for social science (SPSS) software version 25.0 was used to determine the pearson coefficients. The pearson coefficient correlation is between -1 and 1 where -1 to 0 presents negative correlation (-1 to -0.5 indicates high negative correlation and -0.5 to 0 indicates low negative correlation) and 0 to 1 presents positive correlation (0 to 0.5 presents low positive correlation while 0.5 to 1 presents high positive correlation). According to the results, the correlation between communication, Resource scheduling, Huaman resource planning and success project was **0.947, 0.881, and 0.932** respectively, it presents that there was a significant relationship between project planning and success of construction project.

4.2.2 Regression Analysis

Table 4.6 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.950[a]	.902	.901	1.59846

a. Predictors: (Constant), Human Resource Planning, Resource Scheduling, Communication

Source: Primary data, 2023

The results present the Model Summary, the results present that the R Square=0.902, It was clear that 95.0% of all variables of success of project can be explained by one's of all variables of the Project planning.

Table 4.7 ANOVA[a] of project planning on the success of construction projects

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	4629.987	3	1543.329	604.027	.000[b]
Residual	500.793	197	2.555		
Total	5130.780	200			

a. Dependent Variable: SUCCESS PROJECT

B. Predictors: (Constant), Human Resource Planning, Resource Scheduling, Communication

The results indicate ANOVA[a], the results presented than the variables were statistically significant with F= 604.027 and p value=0.000b, it means that there was a significant relationship between Project planning and success of project.

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Table 4.8: Coefficients[a] of project planning on the success of construction projects

Model	Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.
(Constant)	11.104	1.957		5.673	.000
Communication	1.235	.152	.685	8.103	.000
Resource Scheduling	.002	.139	.001	.016	.987
Human Resource Planning	.379	.156	.271	2.433	.016

a. Dependent Variable: SUCCESS PROJECT

Source: Primary data, 2023

The results present the constant of independent variables of the project planning. It is statistically significant since p value is less than 0.05. The results present the variables of project planning; Communication was statistically significant with p value=0.000[b], the Resource Scheduling was not statistically significant with p value=0.987[b], and the Human resource planning was statistically significant with p value=0.016[b].

According to SPSS generation of table 4.12 in regard to the equation $Y= \beta 0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \varepsilon$, where by Y= Success of project then the Equation served as;

Y= 11.104+1.235X1+0.002X2+0.379X3,

It is in this regard that using the regression equation mentioned above in respect to the holding all constants (Communication, Resource Scheduling and Human resource planning) in line with the success project was at **11.104**, This indicated that, this ensured success of project, there was a need undergo Communication, Resource scheduling and Human resource planning to undertook and ensure success of project.

The SPSS Calculated the t-statistic as t-test increased on 5.673 and t-test increased on 8.103 and t-test increased on 0.016 and t -test increased on 2.433 and. The results present the variables of Project planning; Communication was statistically significant with p value=0.000[b], the Resource scheduling was not statistically significant with p value=0.987[b], and the Human resource planning was statistically significant with p value=0.016[b].

From the table 4.12 Coefficients of Project planning and success project, Unstandardized Coefficients were used in order to attain the t-test used in explanation above by B values undergo series of dividing from B value and std error thus attainment of the t-test; 11.104, divided 1.957 resulted into constant with 5.673, then1.235 divided 0.1,52 resulted into Communication factor with 8.103,then 0.002 divided 0.139 resulted into Resource scheduling factor with 0.016, and then 0.379 divided 0.156 resulted into Human resource planning factor with 0.271 value .

4.2.3 Hypothesis testing

In order to test the study's four formulated hypothesis, the t statistic that tests whether a B value is significantly different from zero (HO: β=0) The study computed simple regression analysis to test the study hypothesis. For p-value<0.05, H0 was rejected; and H2 accepted

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4.2.3.1 Testing research hypothesis one

H_{01}= There is no significant influence of communication during planning and success of construction projects in Nyarugenge District. As evident in Table 4.12, the Unstandardized beta value for communication during planning and success of construction projects in Nyarugenge District was significantly greater than zero (β_1=1.235, p-value=0.000<0.05,t= 8.103). Subsequently the null hypothesis was rejected because p-value=0.000 is less than 5% level of significant, hence communication during planning had a statistically significant influence on success of construction projects in Nyarugenge District

4.2.3.2 Testing research hypothesis two

H_{02}= There is no significant effect of resource scheduling on the on success of construction projects in Nyarugenge**.** As evident in Table 4.12, the Unstandardized beta value for resource scheduling on the on success of construction projects in Nyarugenge District was insignificantly greater than zero (β_2=0.002, p-value=0.987<0.05, t= 8.103). the null hypothesis was accepted because p-value=0.987 is greater than 5% level of significant, hence, resource scheduling had insignificant effect on success of construction projects

4.2.3.3 Testing research hypothesis three

H_{03} = There is no significant effect of Human resource planning and success of construction projects in Nyarugenge District**.** As evident in Table 4.12, the Unstandardized beta value for Human resource planning and success of construction projects in Nyarugenge District was significantly greater than zero (β_3=0.016, p-value=0.016<0.05, t= 8.103). Subsequently the null hypothesis was rejected because p-value=0.000 is less than 5% level of significant, hence Human resource planning had a statistically significant effect on success of construction projects in Nyarugenge District**.**

5.1 Conclusion

In conclusion, Project planning is a highly valuable stake in any project operations in order to attain the success in Construction activities. Project planning provides a crucial mechanism of how any construction project works and other related activities in which they can be measured and how it can help to the achievement of project objectives (Idoro, G. (2012). From this perspective view in as far as the study is concerned, a researcher concluded while basing on the results obtained. According to the results, the relationship between Communication, Resource scheduling and Hunman resource planning was 0.947, 0.881, and 0.932 respectively, and the results presented than the variables were statistically significant with p value=0.000b, it concluded that there was a significant relationship between project planning on the success of construction projects in Nyarugenge district implemented by Fair construction Ltd.

5.2 Recommendations

The study recommends that construction project investors prioritize the information obtained during project planning to ensure the sustainability of constructed properties. Additionally, the government, particularly the Ministry of Infrastructure (MINIFRA), should recognize the positive impact of effective project planning on Rwandan citizens and encourage their active involvement in construction project activities for economic empowerment. Furthermore, MINIFRA is advised to regularly provide professional guidelines to construction companies and the public, fostering adherence to project planning practices and overall project success.

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