Effect of Project Planning Practices on Completion Rate of Road Construction Projects in Mombasa County, Kenya

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Abstract:

Purpose: *The study examined the effect of project planning practices on the completion rate of road construction projects in Mombasa County, Kenya. It addressed persistent delays and cost overruns in infrastructure delivery by empirically testing whether planning practices significantly influence project completion outcomes.*

Material/methods: *The study was grounded in Systems Theory and employed an explanatory research design. The target population comprised 620 stakeholders involved in road construction projects in Mombasa County, including project managers, contractors, engineers, and county officials. Stratified random sampling was used to select respondents. Primary data were collected using structured questionnaires based on a five-point Likert scale. Data were analyzed using descriptive statistics (means and standard deviations) and inferential statistics, including Pearson correlation and simple regression analysis using SPSS version 25.*

Findings: *The results revealed a positive and statistically significant relationship between project planning practices and completion rate ($r = 0.492$, $p = 0.000$). Regression analysis showed that planning practices positively influenced completion rate ($\beta = 0.343$, $B = 0.320$, $p = 0.000$), with the model explaining 11.7% of the variation in project completion ($R^2 = 0.117$). This indicates that while planning practices significantly improve project completion, other factors such as funding, contractor capacity, and procurement delays also play a substantial role.*

Conclusion: *The study concludes that project planning practices significantly enhance the completion rate of road construction projects in Mombasa County, although their influence is moderate due to the presence of other external and internal factors affecting project performance.*

Value: *The study provides practical insights for project managers and policymakers on strengthening planning systems to improve infrastructure delivery. It also contributes to project management theory by reinforcing Systems Theory and supporting the role of planning as a critical but not exclusive determinant of project success.*

Keywords: *Project Planning Practices, Completion Rate, Road Construction Projects, Systems Theory, Mombasa County, Kenya*

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1. Introduction

Globally, the increasing rate of successful road construction completion worldwide has become an important factor in assessing performance, economic efficiency, and the delivery of public value. Despite the investment in transport infrastructure, many

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construction projects continue to come in late, and over budget (World Bank, 2023; Bent Flyvbjerg, 2021). Socio-economic benefits such as the advancement of connectivity, increased trading, and lower transport costs (OECD, 2022) are only derived when road construction projects are completed within established time frames, budgets, and the standards of quality. The World Bank (2023) states that a global study showed that less than fifty percent of infrastructure projects were completed within the established time and cost requirements. Overruns on road projects in developed countries, for example, the United States and the United Kingdom, are the result of delays in meeting regulations, redesigning projects, and poor stakeholder collaboration (Federal Highway Administration, 2023; National Audit Office, 2022). Likewise, countries such as India and China face serious delays in project implementation as a result of poor land acquisition processes, gaps in project financing, and poor collaboration (Asian Development Bank, 2022; Zhang et al., 2023). Advancements in urban development and the systems that are used to deliver projects have made the successful completion of road construction projects a global challenge (Flyvbjerg, 2021).

In sub-Saharan Africa, road construction projects face challenges such as weak institutions, lack of funds, and systems for efficient project management. These challenges prevent the reliable delivery of infrastructure (African Development Bank, 2022). In countries like Nigeria and Ethiopia, road construction projects regularly face problems of significant delays and in some cases have time over-runs of 90% due to funding and contractor problems as well as challenges relating to governance (Aibinu & Odeyinka, 2020; Gebrehiwet & Luo, 2021). Delays on construction projects with financial constraints, unrealistic timelines, and poor site management are also experienced with road construction projects in East African countries like Tanzania and Uganda (Kikwasi, 2021; Alinaitwe et al., 2020). These delays often affect the socio-economic benefits of the road infrastructure projects and increase related costs (East African Community, 2023). There are many road construction projects in Kenya that have been delayed despite the government investing a lot of resources into the transport infrastructure through the Government of Kenya Vision 2030 because of challenges like inadequate procurement, funding, and project management (Government of Kenya, 2023; World Bank, 2023). In Mombasa County, there are delays to transport projects as a result of rapid urbanization, traffic congestion and challenges relating to land acquisition that also affect transport provision and reduce transport efficiency in the county (Kenya National Bureau of Statistics, 2023).

Proper planning is essential for the successful scheduling, costing, managing, and assigning of project implementation activities. The Project Management Institute (2021) has indicated project planning practices as fundamental to the successful completion of road construction projects. Delay and failure to complete construction projects, be it in the developed or developing countries, is mostly due to inadequate planning (Osei-Kyei & Chan, 2020). Proper planning of projects fosters collaboration among the stakeholders, the monitoring of construction work, and the making of decisions as needed, thus, construction projects have a higher likelihood of being accomplished in the construction period and within the budget. Construction projects (i.e. road construction) in Kenya, particularly in the counties where the demand for road infrastructure is high, have remained uncompleted for a long time, despite the recognition of planning practices as being key to the successful completion of construction projects (World Bank, 2023). Lack of road construction projects in Kenya whose completion has matched the expected performance, justifies a study to assess the role of project planning practices on the completion of road construction projects. This

study focused on the effects of project planning practices on the completion of road construction projects in Mombasa County, Kenya.

2. Empirical and Theoretical Review

2.1. Theoretical Review

In the 1940s, Ludwig von Bertalanffy began developing his Systems Theory, which he went on to formalize in the General Systems Theory (GST) in the 1950s and 1960s (Bertalanffy, 1968). The theory posits that a project, or an organization, is a system, comprising a multitude of components that are interrelated and that should be able to work collaboratively (Skyttner, 2021). When focused on project planning and design, the theory postulates that the successful attainment of project goals is contingent upon the coordination and the integration of project planning activities, the balance with the project's context and the prevailing situational constraints (Kerzner, 2022). The Systems Theory proposes that the design and planning of projects incorporate a great number of activities. These activities include scheduling, costing, designing, estimating, and assessing the project, and planning the resources and the risks involved. The aforementioned activities are not independent of each other, and are imperative for the successful realization of the project (Meredith & Mantel, 2021). The extension of this theory asserts that negative impacts of poor planning and designing of an element of a project are proportional to the extent of the disruption on the project once it is being implemented (PMI, 2021).

Systems Theory in project management states that all activities of a project are coordinated and conducted based on the project's planning and design (Kerzner, 2022). This theory asserts that if project planning is done well, then the integration and alignment of project goals, schedules, resources, tools, and methods is done better, which, in turn, leads to greater efficiency and less uncertainty in operations (Burke, 2020). With adequate design and planning, project managers are able to set work schedules, precisely define the project, estimate the budget, identify the potential issues, and create feasible methods of implementation, as a way to achieve the desired results of the project (PMI, 2021). Systems Theory also holds that communication, coordination, and feedback among project participants is made easier by the planning and design of the project, which, in turn, enables better choices and reduces friction during implementation (Meredith & Mantel, 2021). On the other hand, planning and designing a project poorly leads to delays, budget overruns, and poor-quality outcomes, among other system failures, due to the interlinked nature of various activities in a project (Skyttner, 2021).

The completion rate of road construction projects is highly dependent on the planning and design of the projects, which is informed by Bertalanffy (1968). The theory shows that the planning of road construction projects improves the scheduling of the road construction projects, the budgeting of the construction projects, and the allocation of construction resources. This improves the construction of the project within the time and quality requirements of the project (Kerzner, 2022). The theory also shows that the design of a construction project clearly defines the scope, the construction requirements, and the construction techniques of the project, which reduces the construction risks and construction quality disruptions (PMI, 2021). Systems Theory also holds that planning and project design help build the communication and feedback system among the contractors, engineers, consultants, and the client (commonly government) in construction projects (Burke, 2020). On the other hand, in the absence of planning and design, there are disruptions that are reflected in project delays, changes in project requirements and designs, and construction of low-quality projects. This is

caused by the low quality of the planning subsystem, which affects the project as a whole (Meredith & Mantel, 2021). Hence, Systems Theory helps in explaining the impact of planning and design on the completion of road construction projects in Mombasa, Kenya (Skyttner, 2021).

2.2. Empirical Literature (Hypothesis Development)

A study conducted by Samo et al. (2023) in Kenya, looked at the effect of planning structures on road construction projects. The study embraced a positivist ideology, whereby measurement is quantifiable, and relationships among elements are observable. This study was based on a cross-sectional survey, where the researcher's collected data at the same time from a large group. As their primary data sources, the researchers focused on road construction contractors and road construction agency staff. The researchers used a sample selection approach known as strata, to ensure representation of all road construction project participants. The researchers prepared survey questionnaires for data collection. The researchers also planned to analyze their data using the SPSS software. For their data analysis, the researchers aimed to use both the descriptive and inferential analysis methods. In the study, participants were of the opinion that the planning of road construction projects brought significant improvement in the road construction activities in Kenya. Stakeholder planning, budgeting, scheduling, and planning of the project construction resources were the primary elements of construction project planning, as perceived by the participants. Participants indicated an improvement in the planning frameworks and a reduction in delays, cost overruns, and a greater adherence to project deadlines. Improved stakeholder relation planning was believed to improve stakeholder Planning, thereby enhancing efficiency in the execution and administration of activities. The participants showed consensus that project planning was critical for execution of road construction in an efficient manner in Kenya.

Mongina and Moronge (2021) studied the impact of various project management practices on the performance of road construction projects in Nairobi. Using both descriptive and causal survey techniques, they aimed to identify the current conditions and the relationships between those project management practices and the performance of the projects. The researchers focused on road construction project management professionals and supervisors in Nairobi County; structured questionnaires provided enough uniformity for responses and aided in formulating data analyses. The authors indicated that of all project management practices, planning of project management was the most influential practice of project performance. Compared to other management practices, monitoring, and communication of project management, planning of project management was the most significant factor in improving project performance. The authors indicated that the planning of management of project resources, management of project time, and management of project teams was improved. Improved management planning of construction projects led to the projects being completed in a timely manner and significantly reduced project delays and budget overruns. The authors asserted that management planning of construction activities within Nairobi County is essential due to the increased level of management of construction activities and the heightened engagement of stakeholders, due to the increased level of construction activities.

The 2022 study by Kabiti and Kikwatha analyzed the impact of project planning on the outcome of rural road construction projects by the Kenya Rural Roads Authority (KeRRA), focusing specifically on case studies in Meru County. The study used a descriptive survey research design to provide insight on the impact of planning practices of road construction projects by systematically collecting and analyzing data

to assess road construction projects. Their target population included engineers, project managers, and technical officers who implement KeRRA road construction projects. The researchers developed structured questionnaires for data collection, and applied regression analysis to determine the strength and nature of the relationships between the variables. The study found that several project planning practices exert a substantial impact on the outcome and time efficiency of road construction projects. The study identified the principal planning practices as project scheduling, scope planning, resource planning, and planning of communication. The study noted that project scheduling and scope planning were the most important of the practices. The study also observed that the absence of scope and schedule planning resulted in project disruption and poor stakeholder coordination. It was found that planning of communication facilitated the flow of information and helped reduce both communication errors and delays. The study concluded that the appropriate use of these project management practices greatly enhances the outcome and time efficiency of rural road construction projects.

Using a mixed-method research design, Onwong'a (2025) examined the application of project planning and the performance of road projects in Nairobi City County, Kenya, the focus of this doctoral research. To respond to the study objectives, both qualitative and quantitative methodologies were employed. The study participants were road construction project managers, engineers, contractors, and county planning personnel from road construction projects. Quantitative data were collected through a structured questionnaire, whereas qualitative data were collected through interviews to enable the researcher to gain an understanding of the construction project execution and planning constraints. The study concluded that road construction projects' planning practices of budget, risk, and communication planning have a direct positive influence on the construction project's performance. The study went on to conclude that road construction projects that incorporated budget planning are more likely to avoid budgetary insolvency, with risk planning accommodating disrupted and unplanned contingencies within the construction plan. The study also concluded that the planning of construction communication positively influences and raises the construction project's stakeholder engagement coordination. It was also concluded that more than 80% of construction projects which had incorporated the project planning practice completed the construction within the stipulated time and met the acceptable quality standards. The study also concluded that project planning practice is very important in the construction of road infrastructure projects, particularly in the urban areas where the engagement and participation of the construction stakeholders are very active.

Wandiri and James (2020) surveyed Kenyans to establish the status of the management of road construction projects and its effect on rural road construction projects in Machakos County. The researchers used a descriptive causal research design to manage the existing project management practices and find the cause and effect of project management practices on project performance. The focus of the study was the contractors, engineers, and supervisors of the road construction projects. The researchers employed regression analysis to establish the extent of the relationships of the other constructs. The research design was correlational, and the researchers applied the regression analysis technique to examine the factors. Most of the researchers emphasized project management planning as the vital step of the project management framework, and this was the cause of the improved performance of the rural construction projects. structured project management planning improved the efficiency of project management planning and ensured the construction resources of the project were utilized optimally. Resource management and structured project management

planning reduced delays and improved efficiency of management of construction resources, and this led to improved completion of construction of the project. The improved management of the project ensured the team was effectively managed to complete the project within the defined time and improved management of the project resources was achieved. The focus of the rural road construction project was project management planning to ensure the construction of the project was completed within the defined time. This also resulted in the optimal usage of construction resources of the project and significantly reduced the wastage of construction resources of the project.

H1: Project planning practices has significant effect on completion rate

3. Research Methodology

An explanatory research design was used to analyze the relationship between project planning practices and the rate of completion of road construction projects in Mombasa County. This design was appropriate because it enabled the researcher to analyze the relationship between planning practices and the successful completion of projects. The unit of observation was the project managers, site engineers, contractors, and county officials, while the unit of analysis were road construction projects in Mombasa County. A research design that employed stratified random sampling was used, whereby respondents were grouped in strata, and each stratum represented project participants. This ensured that all stakeholders engaged in road construction activities were effectively represented.

Sample Size and Data Collection

According to Neuman (2018), the population of a study referred to a defined group of individuals from which a sample was drawn and whose characteristics were used to make inferences about the sample's results. The study's target population comprised 620 respondents, who were project managers, construction contractors, government officials, supervisors and site inspectors, county regulators, consulting engineers, and community mediators in Mombasa County. The study utilized purely quantitative data collected from the field through a well-structured questionnaire designed using a five-point Likert scale. The final sample consisted of 243 respondents selected from the target population using the Taro Yamane formula (1967). A pilot study was conducted involving 25 respondents, representing 10% of the sample size, to test the suitability of the research instruments. The reliability test results indicated that all the instruments achieved Cronbach's alpha coefficients above 0.7, demonstrating that the instruments were reliable and suitable for data analysis.

Measurement of Variables

This section describes the study variables. The independent variable was the project planning practice, while the dependent variable was the rate of completion of road construction projects. Table 1. shows the operational definitions and the measurement indicators of the study variables.

Table 1: Measurement of Variables

Variable	Type of the variable	Indicator/Dimension
Dependent variable	Completion rate	Project Time Efficiency Adherence to budget Achievement of quality standards.
Independent Variable	Project planning practices	Resource allocation Risk assessment and management

Data Analysis and Model Specifications

The study used a strictly quantitative data analysis technique which involved both inferential and descriptive statistical analysis using SPSS version 25. Both inferential and descriptive which includes mean, standard deviation, percentages minimum and maximum were all used to summarize demographics and study variables. Inferential statistics was also used in the study as both correlation and regression analysis was carried out. The following regression equation was adopted to test the proposed hypotheses:

Model 1: Testing the effect of the project planning practices on completion rate of road construction project in Mombasa County.

$Y = \beta 0 + \beta 1 X1 + \varepsilon$……1

4. Findings and Discussions

A sample of 243 stakeholders that are involved in road construction projects in Mombasa County, Kenya was selected to participate in the study. Out of all the questionnaires that were distributed, 239 were completed and returned to the researcher, out of which 230 were appropriately completed. All 230 questionnaires were analyzed, giving a response rate of 95%. The response rate of 95% is considered above average for studies in project management and organizational studies, and is therefore cited as an acceptable response rate (Anseel et al., 2010). The 95% response rate was adequate for the study on the effect of project planning practices on completion rates in road constructions project in Mombasa County Kenya. Several studies that have captured similar response rates include studies conducted by Van Waeyenberg et al. (2015) and Roberts et al. (2020).

Descriptive Statistics for Completion Rates

The completion rate (CR) was evaluated using a 5-point Likert scale and 230 subjects. The results suggest a minimum score of 1.00 and a maximum score of 5.00; thus, spread responses across the entire scale. The mean completion rate score was 3.0000, thus, respondents rated the completion of the rate as moderate, overall, and described the completion of the rate as neither low nor high but rather moderate. The completion rate mean was described by a standard deviation of 1.17585, thus, the completion rate score was described by a moderate amount of variation. Generally, the completion rate results of the sample described that completion rate performance was highly variable; therefore, the results suggested completion rate performance was rather inefficient. The results describe the need for the implementation of more formal monitoring and controlling systems to improve efficiencies of performance at the completion of project goals on a more consistent basis among the respondents and project tasks in the future.

Descriptive Statistics for Planning Practices

The descriptive statistics for project Planning practices indicate results based on 230 respondents. The scores range from a minimum of 1.20 to a maximum of 4.80, showing that respondents provided varied perceptions of project management practices within the studied context. The mean score of 3.210 suggests a moderate level of agreement, implying that, on average, project Planning practices are neither strongly weak nor strongly strong but are perceived as average to satisfactory. The standard deviation of 0.66632 indicates relatively low to moderate variability in responses, meaning that most respondents' views cluster around the mean with limited dispersion. This suggests a reasonable level of consensus among participants regarding the implementation of project management practices. Overall, the results imply that while project planning practices are present and functional, there is still room for improvement to enhance

consistency, effectiveness, and overall project performance within the sampled population in the study area context.

Correlation Analysis

Table 2. indicates that project planning practices (PMP) positively correlate and significantly impact the completion rate (CR) at (r = 0.492, p = 0.000). Higher completion rates are achieved when project planning practices are improved. The 0.492 correlation coefficient shows that the two variables are positively, moderately related. The significance being less than 0.05 implies that the relationship is real. This means that planning practices do affect the completion of road construction projects positively and do so in a timely manner.

Table 2: Correlation Analysis

		PP	**CR**
PP	Pearson Correlation	1	
	Sig. (2-tailed)		
	N	230	
CR	Pearson Correlation	.492**	1
	Sig. (2-tailed)	.000	
	N	230	230

PP- Project Planning Practices
Cr- Completion Rate

Hypothesis Testing (Regression Results)

Regression results showed the effect of Project Planning Practices (PP) on Completion Rates (CR) for road construction projects in Mombasa County, Kenya. The hypothesis to be tested is: The correlation coefficient (R = 0.343) indicates a moderate positive relationship between planning practices and completion rate. This implies that although the relationship is relatively weak, the completion rate of road construction projects tends to increase with the improvement of planning practices. The coefficient of determination ($R^2 = 0.117$) indicates that planning practices account for 11.7% of the variance in the completion rate. This suggests that planning practices, although critical in determining project completion, account for only a small fraction of the variance in completion rate. Among other factors that account for the remaining 88.3% of the completion rate variance, one may consider funding, contractor capacity, political influence, procurement delays, and the environment. The adjusted R^2 (0.114) is almost equal to R^2, demonstrating that the model is fairly stable and not subject to oversimplification. The standard error of the estimate (1.10711) indicates the average model prediction error and implies a moderate level of prediction accuracy.

The Durbin-Watson statistic (1.979) is almost equal to 2, demonstrating that there are no issues with residuals, and hence the assumption of independence of errors is not violated. The goal of the ANOVA test is to assess the significance of the overall regression model. Because the significance level is p = 0.000, and the value of the F-statistic is F = 30.321, the overall regression model is statistically significant at the 0.05 level. Therefore, project planning practices can be used as a predictor of the completion rate. In this case, the regression model is a better model than the no-predictor model. The Coefficients provides the detailed information about the completion rate and its relationship with project planning practices. The constant value of B = 2.039 is the estimated completion rate when project planning practices equal 0, though in all

practicality the value of 0 will never occur. The unstandardized coefficient of project planning practices (PP) is B = 0.320, which suggests that the completion rate, on average, will increase by 0.320 if project planning practices increase by one unit. The effect from project planning practices is positive and large. The standardized beta coefficient is B = 0.343, suggesting a positive moderate effect when project planning practices are compared to other predictors. The t-statistic is t = 5.506, and the level of significance is p = 0.000. Thus, the relationship of project planning practices and the completion rate is a statistically significant one. Since the significance level is lower than the 0.05 level, the null hypothesis (H_{01}) is rejected. The results indicate that the project planning practiced undertaken positively influences the completion rate of road construction in Mombasa County. Even though the explanatory level is low (11.7%), the level of planning indicates that project completion is extensive. Therefore, the completion of road construction projects in Mombasa County can be accomplished by enhancing the planning of work scheduling, allocation of resources, and assessment of risks.

Table 3: Regression Analysis

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.039	.189		10.781	.000
	PP	.320	.058	.343	5.506	.000

Dependent variable: CR

Discussion

The focus of the study was to assess the impact of planning practices and the level of completion of road construction projects in Mombasa County, Kenya. The study specifically sought to assess the extent to which planning practices impact the level of completion of construction projects. The first null hypothesis (H_{01}) postulated that the practices of planning do not impact the level of completion of construction projects in Mombasa County. The results of the regression analysis indicated that the level of planning practices positively correlates to the level of completion, with a correlation coefficient of R = 0.343. This indicates that the completion of the level of construction of roads projects improves with the level of improvement of the planning practices of the projects. The fact that the relationship is not strong is understandable, given that there are many variables that impact the level of completion of construction projects. The coefficient of determination ($R^2 = 0.117$) indicated that planning practices explain 11.7% of the level of completion. This indicates that planning is a relatively important factor in determining the success of a construction project; however, it accounts for a small proportion of the overall success of the construction of roads. The remaining 88.3% is due to other internal and external factors, including the availability of funds, capacity of contractors, delays in procurement, political factors, and conditions of the environment. This indicates that the completion of a project is the result of many factors, including management, financing, and the environment. The adjusted R^2 value of 0.114 indicates that the R^2 value is 0.114, and that the model is not overfitted and is stable; therefore, the regression model is reliable to a certain extent to explain the relationship between project planning practices and project completion rates. Also, the standard error of the estimate (1.10711) indicates that the model explains the completion rates of projects to some extent, however, the model should not be used for other projects since it is not absolutely reliable and the standard error of the estimate is

moderate. The Durbin-Watson statistic (1.979) is almost equal to 2, so there is almost no autocorrelation in the residuals, and the assumption of independence of errors is not violated, which confirms the validity of the regression results. The overall regression model is ANOVA statistically significant ($F = 30.321$, $p = 0.000$), therefore, it is safe to say that project planning practices impact completing rate of projects, and the model is an improvement over the no predictor model. According to the Coefficients results, and the model, the constant term ($B = 2.039$) shows that the completion of projects is theoretical, and the effect of the project planning practices is ($B = 0.320$), which shows that the completion rate of projects increases by 0.320 per each unit of project planning practices and other factors are held constant. The project planning practices have a positive and a moderate effect on project completion rate as shown by the ($\beta = 0.343$) which is a standardized beta value. The value of the t-statistic ($t = 5.506$) and the p-value ($p = 0.000$) indicate that project planning and project completion rates were positively correlated. Thus, the null hypothesis was rejected. This shows that project planning positively affects the completion rates of road construction projects in Mombasa County. Results suggest that even though the contribution of project planning to the final outcomes of a project is relatively small, it is still an important factor. The improvement of project planning practices such as work scheduling, resource planning, and risk management can result in a dramatic improvement of the project completion time.

5. Conclusion and Recommendations

Conclusion

In summary, the completion rates of road construction projects in Mombasa County, Kenya, positively correlate with the use of project planning techniques. The influence of planning on completion rates is low ($R^2 = 0.117$), but planning is still an important factor. The study accepts the alternative hypothesis. Though many external and internal factors influence project completion, the study confirms that better resource and time management, as well as risk planning, positively impact project completion.

Recommendations of the Study

Managerial Recommendations

Given the study results which showed a considerable positive correlation between the practice of planning and the rate of completion, the managers of the road construction projects in Mombasa County should make the improvement of project planning the cornerstone of performance enhancement. Managers need to understand the need to incorporate planning as a continual flexible process throughout the cycle of the project. This means preparing Work Breakdown Structures, schedules, resource and risk plans, and management plans prior to project execution. Also, planning should include stakeholder management to ensure that the contractors, clients, and the supervising engineers have common expectations. Managers should also commit resources to improve the planning staff. This may include hiring staff with some of the most advanced project management software, like Primavera P6, Microsoft Project, and Building Information Modelling (BIM), which can aid in forecasting scheduling and resource requirements with significant accuracy. The research also indicates that planning deficiencies are one of the most prominent contributors to delays and cost overruns, and for this reason, managers need to be more vigilant in ensuring that there are effective control and supervision in the management of the projects to ensure that progress is in line with the initial plans. Additionally, construction companies should establish systems for evaluating management, planning, and contracted project

milestones. This can support them in noticing and correcting the trajectory of a project and its milestones before problems are too great to be corrected. Another area of goal-oriented planning is the recognition of the possible uncertainties of out of sequence weather, funding, and approvals for the project. These distractors will be anticipated in advance. Construction managers will most likely achieve improved results of completed projects, improved costs, and construction services to their clients if they are committed to improving systems of management and goal-oriented planning.

Recommendations to the Government

The recommendations that arise from the research that shows the effect of planning practices on construction project completion will be important to the construction and the planning of infrastructure. As the construction of most government infrastructure projects is done by contractors, the government must develop mechanisms to ensure that contractors have planning practices. The focus of government construction projects will be on the practices of planning projects in construction and the improvement of infrastructure delivery. Developing and monitoring compliance improvement planning practices in construction will require approval for large construction projects to ensure construction companies provide detailed projects. The plans must include construction schedules with risk management plans and funding schedules. Investing in continuous professional development will apply to public and private Practice Management in planning and managing the procurement of government construction projects. The government should also promote use of digital project management systems for public construction projects to add layers of transparency and accountability. Real-time monitoring of project progress is essential to maintaining the integrity of the system. Delayed and inefficient systems of the past should be a thing of the past if we digitize the systems of management and reporting. The government should also promote public and private collaboration and sponsor the academic institutions to build and promote practices and theories of project management and their best practices of project collaboration. As a last consideration, the government should be urged to create contracts based on the completion of projects with the goal of totally accomplishing projects in the least possible time. If all considerations are taken, the construction delays to accomplish the intended improvements will diminish, and all resources will truly be used for the intended improvements.

Theoretical Implications

These findings are especially valuable to project management theorists, especially in the areas of Planning Theory, Resource-Based View (RBV), and Contingency Theory. From the Planning Theory point of view, there is a body of evidence that links project completion to the degree of planning that occurs. Thus, the planning reinforces the goal of the organization to complete the projects. The evidence demonstrates that defined goals and outcomes of the projects provide the project team with the means to reduce the unknowns and help organize the project. Integrated within the Resource-Based View, planning is a vital organizational skill that gives construction firms a competitive advantage. The findings suggest firms with advanced capabilities in the area of planning are able to execute and complete more projects. This translates into heightened efficiency and increased reputation, and builds the trust of clients. Planning adds to the Resource-Based View in that it moves planning beyond a mere operational function to an untapped strategic resource that has the potential for an organization to maintain a competitive edge in the market. The results also support Contingency Theory in that planning creates the opportunity to match the level of performance that is required of the organization as a result of external constraints that come from the environment. The

findings support the notion that there is no optimal way to manage projects; the success of management is contingent upon the adaptability and pliability of the planning processes and systems. This research demonstrates that planning has been incorrectly perceived as a mere administrative function. The research suggests numerous avenues for future research to determine the nature of factors such as the adoption of technology within an organization, culture and environmental dynamics, and how these may affect the relationship of construction projects and the level of performance achieved.

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