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Determinants of Successful Completion of Force Account Projects in Public Institutions of Tanzania: The Case of Dar es Salaam Water and Sanitation Authority

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Abstract:

This study assessed the factors influencing the successful completion of construction projects using the Force Account approach at the Dar es Salaam Water and Sanitation Authority (DAWASA). Specifically, the study examined the influence of skills of staff, top management support, and financial resources, and their influence on successful project completion as measured by timeliness, budget adherence, and quality compliance. The study adopted an explanatory research design, collecting quantitative data. The study targeted a total population of 228 employees, from which a sample size of 145 respondents was determined using the formula developed by Yamane (1967) at a 5% margin of error. A total of 145 questionnaires were distributed to the selected respondents. Of these, 137 questionnaires were successfully returned, properly completed, and deemed suitable for analysis in this study. Data were analyzed using descriptive statistics, Pearson correlation, and multiple regression analysis. The regression model proved to be statistically significant ($F= 9.054$, $p = 0.000$) and accounted for 30.8% of variance in the project completion results ($R^2 = 0.308$). Staff skills came out as the leading determinant ($\beta = 0.383$, $p = 0.001$) with top management support being the second predictor ($\beta = 0.317$, $p = 0.005$). Whereas financial resources positively influenced project outcomes, this variable did not prove to be statistically significant ($\beta = 0.185$, $p = 0.090$). In conclusion, it is clear from this study that capacity building of staff and top management support will be vital interventions to consider for improving the Force Account project completion results at DAWASA. Other interventions to consider but which did not reach statistical significance include financial management, especially timely allocation of funds and controlling costs. This research recommends that there should be training programs aimed at improving the technical skills of DAWASA staff members; monitoring and evaluation activities involving the management should be encouraged; as well as improved budgetary and financial management.

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Force Account, Construction Projects, Skills of Staff, Top Management Support, Financial Resources.

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Introduction

Constructive projects are some of the vital processes that foster economic development, infrastructural improvements, and the supply of important public services in both developed and developing economies. From a public sector point of view, they greatly enhance transportation systems, water supplies, health facilities, and learning institutions, which are all crucial aspects for national development (Matto, 2023; Magania et al.2025).Although the importance of such projects cannot be underestimated, their effective delivery is one of the most challenging aspects worldwide because of the problems such as delay, excessive costs, poor quality of workmanship, and even abandonment of projects before completion (Mchopa, 2021; Tamosaitiene et al., 2021).

In implementing the construction projects, in recent years the United Republic of Tanzania has decided to adopt the Force Account (FA) framework. The FA technique involves a procurement method whereby public organizations undertake procurement and construction projects using their own resources in terms of employees, machinery, raw material, and financing without employing contractors to do it externally (Milinga & Mpuya,2020; Magania et al.,2025). This technique is widely used with the aim of saving on time, reducing costs, and facilitating fast completion of projects, particularly medium-scale projects (Matto,2023). Nonetheless, the success of this method relies heavily on the capabilities of institutions since issues such as skills of the employees, financial resource, and managerial support determine success (Magania et al., 2025). Organizations that have well-equipped personnel and enough finances perform better compared to other poorly equipped organizations (Tamosaitiene et al., 2021; Cooper et al., 2021).

In developed countries, the usage of Force Account is mostly observed in maintenance and emergency cases where there is high technical and financial capacity of the institutions. This approach in the U.S. can be successful when there are skilled staff members, sufficient budget, and good institutional capacity (Turner & Townsend, 2022). Likewise, Force Account has been seen as the most suitable strategy in Canada and Europe where municipal projects related to maintenance benefit from the presence of a proper accountability and decision-making framework (Windapo et al.2020; Olafsson et al., 2021). The above contexts indicate that even in developed nations, successful implementation is highly dependent on institutional capability and proper resource management (Cooper et al., 2021).

Force Account is one of the practices undertaken in African countries to reduce expenses associated with executing public infrastructural construction works. Nations including Nigeria, Ghana, and South Africa adopt the practice of Force Account as a strategy to counter delays encountered through traditional procurement processes (Adegoke & Dada, 2020). However, the application of Force Account is inconsistent since there are challenges such as inadequate technical skills, ineffective financial management, and lack of proper commitment among leaders (Windapo et al.,2021). Specifically, there

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are challenges associated with delays caused by poor financial management skills and lack of adequate technical knowledge in Ghana whereas South Africa succeeds because of the existence of proper management systems (Aghimien, et al., 2017).

There is a prevalence of Force Account application in the East African nations such as Kenya, Uganda, and Rwanda, whereby Force Account is employed for improving infrastructure delivery and procurement practices (Mureithi & Njeru, 2022). In the case of Kenya, the introduction of Force Account requires training of personnel, presence of finance, and appropriate monitoring practices (Massawe, 2023). The developments in Uganda have been witnessed in terms of rural infrastructure even though there is limited technical capability and involvement of managers (Matto,2021). There is an official recognition of the use of Force Account in Tanzania through the formulation of Public Procurement Regulations in 2013, and improvement of the same in 2016 to increase efficiency in public works in Tanzania (PPRA, 2021). This tool has been widely applied in the construction of schools, road infrastructures, health care facilities and water facilities (Milinga & Mpuya,2020). Other organizations such as the Dar es Salaam Water and Sanitation Authority (DAWASA) have applied it to facilitate implementation processes and reduce costs incurred in procurement (Komba & Mussa, 2022). Even though there is application, it is noted that several challenges are faced when implementing Force Account. These include delay in implementation, cost overrun, lack of coordination and poor efficiency in resource utilization within the project (Mchopa, 2021; Magania et al.,2025). The challenges have been attributed to inadequate financing, lack of personnel as well as lack of commitment from the leaders (Milinga & Mpuya, 2020; Komba & Mussa, 2022). More empirical evidence suggests that there are cases where the Force Account is implemented in the context of delayed and exceeded budgets in many projects in Tanzania. This has been evidenced by the Controller and Auditor General Report for 2024 on delays and budget excesses in water sector projects (CAG, 2024). It was found that projects by the DAWASA carried out from 2021 to 2023 faced problems of inefficiency, delay, and poor utilization of resources (CAG, 2023). Other problems cited by internal reports included poor supervision, lack of training, and management commitment (Magania et al.,2024)

The following are some of the measures taken to solve this issue by the Government of Tanzania and its development partners. The PPRA has come up with guidelines to increase implementation. The organizations such as the DAWASA have enhanced their capacity by training employees and mobilizing resources (Mwagike, & Changalima, 2022). Furthermore, the World Bank and GIZ have helped in enhancing capacity for project management in public institutions (World Bank, 2022; GIZ Tanzania, 2023). Despite all these efforts aimed at making the implementation effective, it faces challenges of poor monitoring, resource constraints, and inefficiencies (Aghimien, et al.,2017; Gitonga et al., 2022).

While there is scarcity of information from the available literature about the implementation of Force Accounts projects, the focus of these studies has been mostly on common problems, efficiency issues,

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and procedures related to the same (Matoto, 2023; Mchopa 2020). The role of institutional factors such as skill set of employees, top management commitment, and funding has been overlooked with regard to effective implementation of these projects. Moreover, the research literature on Force Account implementation is mostly general in nature, lacking any specific information as far as urban utility institutions are concerned (Magania et al., 2024). There is hardly any literature on the interplay between these internal factors which is essential for the success of the project in urban utilities like DAWASA. Therefore, the aim of this study is to fill this gap by investigating the impact of institutional factors such as skills of employees, support of top management, and availability of financial resources in facilitating the implementation of construction projects in Force Account within DAWASA. This study will add empirical value to the existing knowledge about the impacts of institutional factors in the process of implementing force account projects

Literature Review

Theoretical Literature Review

This study is grounded by Resource-Based View (RBV) theory. This theory was introduced by Wernerfelt (1984), and it was formalized by Barney (1991). According to this theory, organizations exhibit superior performance when they have VRIN (Valuable, Rare, Inimitable, and Non-substitutable) resources. The resources can either be tangible in form (capital and assets), or intangible (skills of the employees, managerial ability, and organizational capabilities). Considering the issue of constructing projects within the public sector, the RBV approach is highly pertinent in such cases as implementation of force account projects requires substantial reliance on internal institutional resources. Staff skills, availability of funds, and management commitment can be considered as important internal strengths which affect the performance of such projects. Considering this, it would be safe to say that the effectiveness of implementing such projects in DAWASA would depend largely on the adequacy of these internal resources and how effectively they can be utilized.

Empirical Literature Review

The Effect of Top Management Support on completion of FA projects

The importance of managerial commitment in ensuring successful project implementation has been identified as one of the key elements that determine the effectiveness of project implementation. For example, Tan et al, (2023) show that a manager's commitment is really important. as it allows organizations to get better at managing projects, in new ways. Zaman et al (2022) show that a supportive leader helps make renewable energy projects work well. In Tanzania, according to Macharia et al. (2023), top management commitment has been crucial in the successful implementation of Force Account projects in the government institutions because of strategic planning and supervision, whereas

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Ni Luh Made (2022) established that the engagement of leaders in the project-related activities reduces bureaucratic activities and ensures efficiency in the projects. Overall, it can be established that managerial commitment is important in ensuring the successful implementation of projects. However, all these studies have focused on the role of leaders separately without considering the influence of management commitment on employees' skills and finances in Force Account projects.

The Effect of Skills of Staff on completion of FA projects

The competence of the workforce is one of the major determinants that can influence the efficiency and effectiveness of construction projects. AlMamlook et al (2020) show that having expertise and experience and getting the training is really important for getting things done on time and avoiding delays in projects. On the hand people who are trained to do their jobs are very good at finishing public construction projects in a very efficient and high-quality way (Alaghbari et al.,2022).In the case of Tanzania, competence of the workforce was found to be the key factor influencing the efficiency of Force Account project by Macharia et al. (2023), whereas Mkama (2023) found competency of the workforce to improve the quality and coordination in community construction projects. Besides, in the case of Force Account projects, Mayani and Mwagike(2024) has stated that competence of the workforce was one of the factors responsible for value for money. Despite the importance of the above factors in influencing efficiency and effectiveness, all the above studies have only looked at human resource competencies and not at other factors like management commitment and finance.

The Effect of Financial Resources on completion of FA projects

Availability of funds has been identified as one of the key determinants of effective project execution. Kavishe et al. (2023) prove that proper disbursal of funds contributes significantly to enhanced accountability, reduction of conflicts and effective cost management during the construction process of the infrastructure development projects. Additionally, Mayani and Mwagike (2024) indicated that provision of enough resources for monitoring and executing the projects leads to an improvement in cost efficiency. The implication drawn from the two studies is that enough financial resources contribute to the efficient acquisition of building materials, better supervision of the projects, and execution within the specified budgets. In contrast, most of the current literature tends to focus mainly on allocation and budgeting of financial resources while overlooking the integration between finances and staff competence as well as managerial support.

Conceptual Framework

The conceptual framework will act as a schematic representation that will show how the independent variables interact with the dependent variable in relation to this study. In this study the dependent

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variable is completion of construction projects while the independent variables are staff skills, management support, and financial resources.

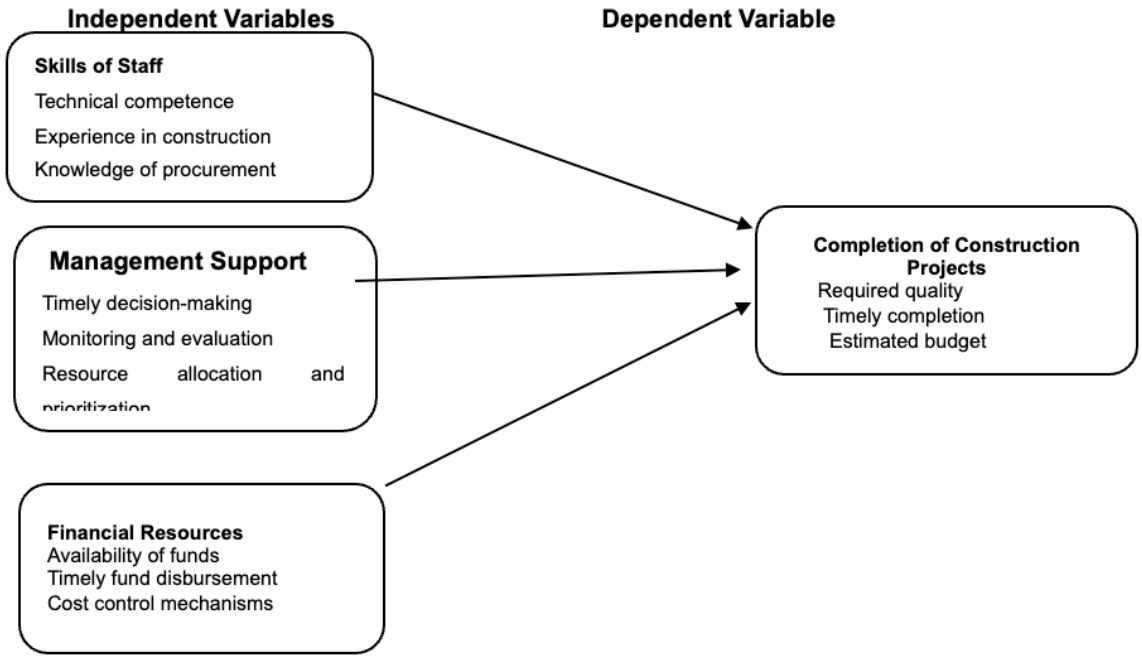

Figure 1: Conceptual Framework

Methods and Data

An explanatory research design was employed to investigate the internal factors that enhance the successful execution of construction projects through the Force Account system of DAWASA. This design seemed fitting since it facilitated the systematic collection and analysis of facts without interfering with the research variables. The study targeted a total population of 228 employees, from which a sample size of 145 respondents was determined using the formula developed by Yamane (1967) at a 5% margin of error. A total of 145 questionnaires were distributed to the selected respondents. Of these, 137 questionnaires were successfully returned, properly completed, and deemed suitable for analysis in this study. Questionnaires with closed ended questions in Likert scale format were used in the data gathering process to measure the level of staff skills, top management support, financing, and success of projects executed. Questionnaire was chosen as data collection technique for this study because it is economical, flexible, and capable of generating comparable data from a larger group of people. It also ensures the anonymity of respondents and reduces bias during data collection (Saunders et al.,2019).

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To guarantee the accuracy of results of this study, appropriate techniques for enhancing validity and reliability of data collection and analysis processes were adopted throughout the research procedure. First of all, content validity was assured through pilot testing of the questionnaire. It helped evaluate its clarity, relevance, and sufficiency from the perspective of measuring the research phenomenon. The next step to improve validity and reliability of results included testing internal consistency with help of Cronbach's alpha coefficient and adopting standardized questionnaires. The gathered data was analyzed with help of IBM SPSS 31. As for data analysis techniques, descriptive and inferential statistics were utilized in order to measure the influence of staff skills, financial resources, and top management support on the successful implementation of construction projects. The latter was achieved with help of the multiple linear regression technique that allowed assessing the contribution of the three factors mentioned above to project success. However, before the Multiple Regression analysis was carried, the researchers tested the underlying assumptions for the model.

Results and Discussion

Demographic Characteristics of Respondents

This part describes the demographic features of the respondents who took part in the study and include gender, educational qualifications, working experience, and knowledge of Force Account.

Variable	Category	Frequency	Percentage (%)
Gender	Male	97	70.8
	Female	40	29.2
Education Qualification	Certificate	15	10.8
	Diploma	27	20.0
	Degree	137	47.7
	Master's Degree	30	21.5
Work Experience	Less than 2 years	9	6.2
	2–5 years	46	33.8
	6–8 years	46	33.8
	9–11 years	23	16.9

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	More than 12 years	13	9.2
Familiarity with FA	Large Extent	53	38.5
	Moderate Extent	67	49.2
	Small Extent	17	12.3

Table 1: Demographic Characteristics of Respondents

Gender of Respondents

According to the results obtained during the research, it can be seen that there was a prevalence of men (70.8%) among the respondents, while women represented 29.2%. It is evident that there was a greater involvement of men in Force Account projects.

Education Qualification of Respondents

The study shows that among the respondents, 47.7% had a bachelor's degree, while 21.5% – master's degree. Diploma holders made up 20.0% and those with certificates amounted to 10.8%. Thus, the majority of respondents had some tertiary education level.

Work Experience of Respondents

It was found out that the biggest groups of respondents consisted of those with 2-5 years and 6-8 years of experience, which made 33.8% for each of the categories mentioned. Respondents with 9-11 years of experience were 16.9%, while with less than 2 years and more than 12 years – 6.2% and 9.2% correspondingly.

Knowledge Regarding the Construction of Force Accounts

Majority of the respondents have answered that their level of familiarity is moderate (49.2%), followed by large (38.5%). Just 12.3% of the respondents have answered small extent of familiarity of Force Accounts. This shows that the respondents have fair knowledge regarding the construction of force accounts.

Descriptive Analysis on the Specific Objectives

This part contains the descriptive analysis of data based on the specified objectives of the study.

The influence of Skills of Staff Members on the Construction of Force Accounts

Table 2 contains the analysis of the first specific objective, which focuses on the effects of skills of staff members on the construction of Force Accounts.

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Statement	N	Minimum	Maximum	Mean	Std. Dev.
Staff have sufficient competence on implementing FA projects.	137	1.00	5.00	3.2154	0.8503
Staff possess adequate experience in construction on FA projects	137	2.00	5.00	3.2769	0.8132
Staff are knowledgeable in procurement on FA projects	137	2.00	5.00	3.1231	0.7340
Valid N (listwise)	**137**				

Table 2: Descriptive Statistics on Skills of Staff

The findings show that staff competence with respect to technical implementation of Force Account projects at DAWASA is moderate (M=3.22, SD=0.85). The implication here is that some of the employees are competent but the differences in competency level are obvious within various teams. This finding is in line with that of Changalima and Mwagike (2024) and Macharia et al. (2023) who contend that competency of the staff greatly improves the outcomes of Force Account projects, and therefore needs to be improved. In addition, the experience of construction (M=3.28, SD=0.81) is moderate, indicating that the employees have reasonable experiences in terms of construction and procurement, though the levels differ from one department to another. This finding is in line with those of Macharia et al. (2023) and Mwagike and Changalima (2022), who found out that experiences in construction and procurement have a great impact on the effectiveness of Force Account projects. On the contrary, the knowledge of procurement process is relatively lower (M=3.12, SD=0.73), being the weakest among the competencies. This indicates uniform views of the weakness in this field among the staff members of DAWASA.

Influence of Top Management Support on Force Account Implementation

The results regarding the second specific objective analysis, which looks into the effect of management support on the implementation of Force Accounts is shown in Table 3.

Statement	N	Minimum	Maximum	Mean	Std. Dev.
Top management makes timely decisions on FA projects.	137	1.00	5.00	3.3692	0.8694

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Top management makes regular monitoring on FA projects.	137	1.00	5.00	3.2615	0.8644
Top management ensures adequate resources for FA projects.	137	1.00	5.00	3.3385	0.8820
Valid N (listwise)	**137**				

Table 3: Descriptive Statistics on Top Management Support

According to the study results, respondents had some moderate agreement that top management offers sufficient support to implement Force Account projects through timely decision making, monitoring and evaluation as well as proper resource allocation, with mean scores of 3.26 to 3.37 and standard deviations of 0.86 and 0.88. The finding implies that respondents were generally satisfied with the level of management support provided to implement Force Accounts. However, the respondents' differences of opinion do indicate that there may be variations in the quality of management support in different departments/projects. In addition, resource allocation was found to be the most supportive factor followed by decision making while monitoring and evaluation got the lowest score, indicating potential improvement areas. These findings coincide with those reported by Zada et al. (2023), Macharia et al. (2023) and Fareed and Su (2022) that effective management support (especially timely decision making, monitoring and resource allocation) improves project implementation performance and success.

Influence of Financial Resources on Force Account Implementation

Table 4. shows the analysis the effects of financial resources on Force Account which was the third objective.

Statement	N	Minimum	Maximum	Mean	Std. Dev.
Funds are sufficiently available for FA projects	137	1.00	5.00	2.8154	0.8022
Funds are disbursed on time	137	1.00	5.00	2.7846	0.8132
There are effective cost control mechanisms	137	1.00	5.00	3.0154	0.8859

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Volume: 07 Issue: 08 Year: 2026
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Valid N (listwise)	**137**

Table 4: Descriptive Statistics on Financial Resources

The results show that there was an expressed worry about the adequacy of financial resources for the implementation of Force Account projects by the respondents, with mean values from 2.78 to 3.02 and standard deviation from 0.80 to 0.89. The lack of budget and untimely release of the available financial resources was indicated, meaning that financial resource limitations and financial delay are some of the challenges encountered during the execution of projects at DAWASA. Untimely disbursement of financial resources proved to be the most important problem related to financial resources, having the lowest mean value among the items listed. The low mean score and high standard deviation imply that the respondents moderately agree that the necessary measures have been put in place to manage costs effectively as there are inconsistencies in the financial resource management practices as noted. These findings agree with the results reported by Mwaiseje et al. (2024a, 2024b), Matto (2023) and Mchopa (2020).

Successful Completion of Construction Projects

Table 5 gives the analysis of the dependent variable, which is the successful execution of Force Account construction projects at DAWASA.

Statement	N	Minimum	Maximum	Mean	Std. Dev.
FA projects are completed within the scheduled time.	137	2.00	5.00	3.2923	0.7791
FA projects are completed within the approved budget.	137	1.00	5.00	3.1846	0.8934
FA projects meet the required quality standards.	137	2.00	5.00	3.2615	0.8644
Valid N (listwise)	**137**				

Table 5: Descriptive Statistics on Successful Completion of Construction Projects

The findings show that Force Account construction projects at DAWASA achieve moderate performance in terms of time, cost, and quality. Completion within the scheduled time recorded the highest mean (M = 3.29, SD = 0.78), followed by compliance with quality standards (M = 3.26, SD = 0.86), while completion within the approved budget had the lowest mean (M = 3.18, SD = 0.89), indicating relatively

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Volume: 07 Issue: 08 Year: 2026
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weaker performance in cost control. These results imply that although project implementation is generally satisfactory, budget management remains the most challenging area compared to time and quality performance. This pattern is consistent with Mwaiseje et al. (2024a; 2024b; 2024c), Changalima and Mwagike (2024), and Matto (2023), who collectively found that while Force Account approaches can enhance timely delivery and quality through improved coordination and staff competence, they often face persistent challenges related to procurement planning weaknesses and inadequate cost control systems, leading to budget overruns.

Correlation Analysis

The correlation analysis technique was applied in order to measure the strength and nature of the relationship between the independent variables (skills of employees, backing of the top management and funds) and the dependent variable (ability to complete projects with force account). Pearson correlations were applied in this study to measure the strength of association between each independent variable and the project completion results of DAWASA.

		Skills Staff	**Top Management Support**	**Financial Resources**	**Successful Completion**
Skills of Staff	Pearson Correlation	1	.161	-.109	.413**
	Sig. (2-tailed)		.201	.389	.001
	N	137	137	137	137
Top Management Support	Pearson Correlation	.161	1	.031	.384**
	Sig. (2-tailed)	.201		.804	.002
	N	137	137	137	137
Financial Resources	Pearson Correlation	-.109	.031	1	.153
	Sig. (2-tailed)	.389	.804		.223
	N	137	137	137	137

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Successful Completion	Pearson Correlation	.413**	.384**	.153	1
	Sig. (2-tailed)	.001	.002	.223	
	N	137	137	137	137

Table 6: Pearson Correlation Results

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

The correlation study found that there exist statistically significant positive associations between the skills of the staff and the support of top management and successful project completion in the case of Force Account construction projects, with the latter being stronger (r = 0.413, p = 0.001) than the former (r = 0.384, p = 0.002). These results demonstrate that employee competencies, their technical knowledge, managerial decisions, control measures, and resource allocations can make a considerable contribution to the achievement of better results in the project completion process. Financial resources, which had a positive association with the success in project completion (r = 0.153, p = 0.223), failed to prove their statistical significance and therefore can be regarded as fewer influential factors. The positive sign of the obtained correlations allows concluding that any increase in employees' skills, management support, and the quality of financial management leads to better project results. Moreover, considering low correlations between independent variables, one can conclude that multicollinearity does not affect these results. The obtained findings are in line with those presented by Macharia et al. (2023) and Changalima and Mwagike (2024), and they confirm the Resource-Based View theory.

Multiple Regression Analysis

Before conducting the multiple regression analysis, the researchers first tested its assumptions to ensure that they met the underlying requirements.

Assumptions of Multiple Regression Analysis

The following are assumptions which were tested;

Linearity Assumption

Linearity assumes that there is a linear relationship between the independent variables and the dependent variable. From the findings obtained through Pearson correlation, it was established that there were positive linear relationships between skills of the workforce, support by top management, availability of finances, and achievement of the Force Account construction projects. Values of the correlation coefficient

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were r = 0.153 to r = 0.413, showing that there were positive directional relationships. Linearity was further demonstrated by plotting a scatter plot of standardized residual versus standardized predicted values.

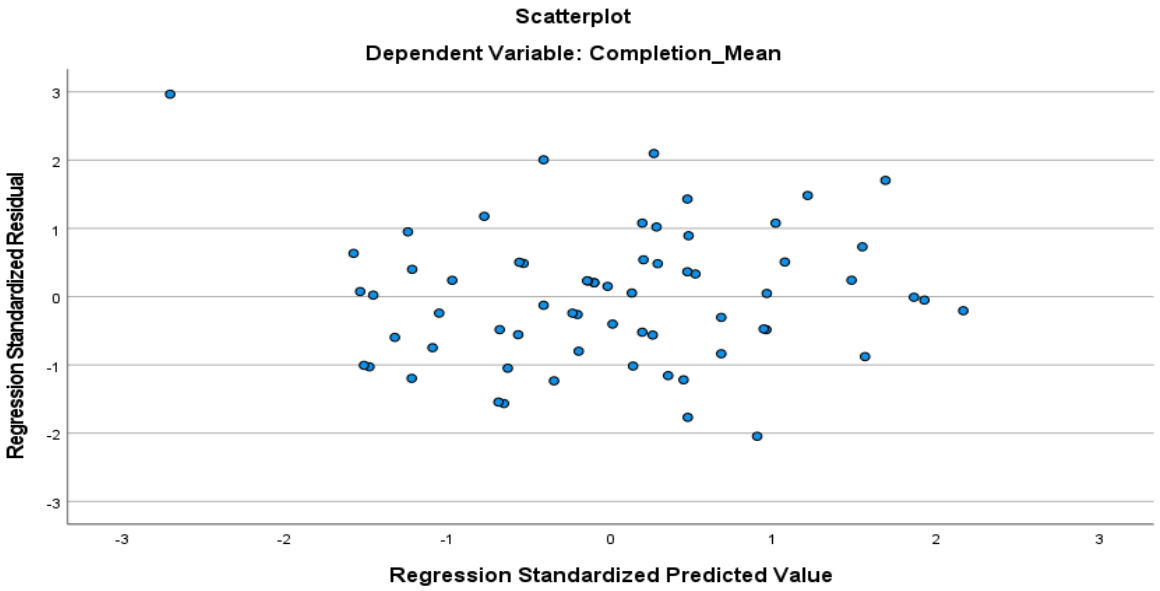

Figure 1: Scatter Plot of *ZRESID against *ZPRED

Normality Assumption

For the test of normality, the graph used was the Normal Probability-Proability Plot of Standardized Residuals generated using SPSS. From this graph, it is evident that the residuals have nearly followed a normal distribution because the dots on this graph coincide with the diagonal reference line without any deviation from normality. The statistic of the residuals showed that the range of standardized residuals lies between -2.045 to 2.967.

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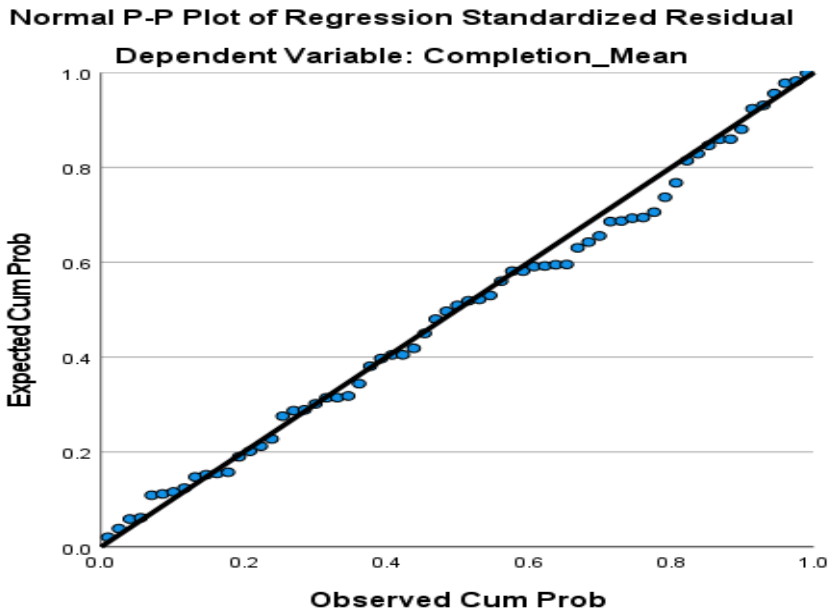

Figure 3: Normal P-P Plot of Standardized Residuals

Multicollinearity Assumption

The degree of multicollinearity was determined based on tolerance and VIF values. Hair et al. (2019) have pointed out that if the Tolerance values exceed 0.10, and VIF values do not exceed 10, there is no multicollinearity. Table 7 shows that all tolerance values are from 0.961 to 0.986, and VIF values are from 1.014 to 1.040. Therefore, there were no issues of multicollinearity.

Variable	Tolerance	VIF
Skills of Staff	0.961	1.040
Top Management Support	0.972	1.029
Financial Resources	0.986	1.014

Table 7: Multicollinearity Test

Homoscedasticity Assumption

As far as homoscedasticity is concerned, this assumption presupposes that variance of residuals stays constant over all levels of independent variables. The plot showing the relationship between standardized predicted values (*ZPRED) and standardized residuals (*ZRESID) does not show any

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specific funel-shaped distribution. Thus, there is an even spread of residuals around the zero line, which indicates that variance of errors stays constant over predicted values.

Independence of Errors Assumption

The assumption of error independence was tested through the use of Durbin-Watson test statistic. The obtained Durbin-Watson statistic was 2.224, which is between 1.5 and 2.5, meaning there was no autocorrelation among residuals. Hence, the assumption of independent errors was satisfied and regression model results are reliable for interpretations.

Absence of Significant Outliers

The existence of significant outliers was examined with the help of standardized residuals and Cook's Distance, both automatically saved as new variables by SPSS software in our database. From the output table, it can be seen that standardized residuals in all 137 cases are between -2.045 and 2.967, thus below the cut-off value of ±3.0. All Cook's Distances were between 0.000 and 0.434, much lower than the cut-off level of 1.0. It means there were no outliers or influential cases and hence the assumption of no significant outliers was satisfied. Since the study have verified all the six assumptions related to the regression analysis, now the study interprets the results given in the following sections.

Model Summary

Model Summary shows the efficiency of the regression model and its ability to explain the impact of the independent variables on the successful implementation of Force Account construction projects. R, R Square, Adjusted R Square and standard error is playing a pivotal role in evaluating the efficiency of the model.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.555a	.308	.274	.6256	2.224

Table 8: Model Summary

a. Predictors (Constant), Skills of Staff, Top Management Support, Financial Resources

Table 8 depicts the existence of a moderate positive correlation between the independent variables and the success of completing the construction works on the basis of R = 0.555. It can be assumed from the value of the coefficient R Square = 0.308 that 30.8 percent of the differences in the outcomes of projects' completion can be explained by the combined impact of the skills of workers, top management support, and finances. The value of Adjusted R Square = 0.274 means that even when taking into account the

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number of independent variables, the model is still relatively reliable. The estimated standard error = 0.6256 proves that the predicted results are sufficiently close to the real data. These findings prove that skills of staff, top management support, and financial resources they contribute significantly towards the successful execution of force account construction projects in DAWASA, although their contribution as a whole is only moderately strong. Further, the 69.2% residual variance can be explained by other institutional and environmental variables such as availability of equipment, vendor performance, among others, which according to Mwaiseje et al. (2024b) are some of the important moderating factors that determine Force Account success in Tanzania. The findings of this study are in agreement with findings by Zaman et al. (2022) who reported that organizational, communication and technical critical success factors can explain a significant portion of sustainable project success though external environmental factors also have an influence on project success. The findings of this study are in agreement with the principles of Resource-Based View Theory according to which internal resources are essential for decision making but operate within the confines of a system.

Analysis of Variance (ANOVA)

ANOVA analysis checks for the significance of the overall effect produced by the staff's skills, managerial support from above, and finances on the outcome of project performance. The result of ANOVA decides the significance of the regression model as compared to the model without any predictors.

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	10.631	3	3.544	9.054	.000b
	Residual	23.875	135	.391		
	Total	34.506	136			

Table 9: Analysis of variance

a. Dependent Variable Successful Completion of Construction Projects

b. Predictors (Constant), Skills of Staff, Top Management Support, Financial Resources

The findings from Table 9 above show that there is statistical significance with respect to the regression model given that the F-value is 9.054 while the significance value (p) is equal to 0.000. It means that the impact of skills of the employees, management support, and finance on the completion of Force Account projects is very significant and is not random at all. The regression sum of squares (10.631) to total sum of squares (34.506) indicates that the regression equation explains a reasonable

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proportion of the variance in the dependent variable. The residual mean square of 0.391 is reasonably low. Such results indicate the validity of the regression analysis model to predict the success of Force Account construction projects by DAWASA. The statistical significance of the entire model gives a robust validation to the hypothesis of the study that skills of the personnel, management support, and financial means have significant impacts on the project outcomes. Such conclusions carry much practical significance for the relevant policy makers and the management team of DAWASA, since it indicates that institutional actions targeting such three dimensions of projects will yield statistically significant outcomes. The research findings are supported by the study conducted by Sanchaniya et al. (2024), where they constructed a model for improving project management competence within the construction industry and found out that all three skills, including technical, knowledge, and soft, along with management intervention made significant predictions about the outcomes of the projects.

Coefficients of Regression

The regression coefficient table is the effect caused by each independent variable on the successful completion of a project through Force Account Construction Projects. The effect is represented in terms of the magnitude, nature and level of statistical significance of the effect of each predictor on the dependent variable.

Model	**Unstandardized Coefficients**		**Standardized Coefficients**	**t**	**Sig.**	**Collinearity Statistics**	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	.407	.574		.709	.481		
Skills of Staff	.408	.116	.383	3.523	.001	.961	1.040
Top Management Support	.301	.103	.317	2.931	.005	.972	1.029
Financial Resources	.185	.108	.185	1.723	.090	.986	1.014

Table 10: Coefficients of Regression

a. Dependent Variable Successful Completion of Construction Projects

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Table 10 presents the results of regression analysis which demonstrate that skills of staff and support from top management positively and significantly influence the completion of Force Account construction projects at DAWASA. Financial resources are found to positively yet insignificantly affect the outcomes. Staff skills prove to be the most influential variable (B = 0.408, p = 0.001; Beta = 0.383), with top management support being the second important (B = 0.301, p = 0.005; Beta = 0.317). Thus, technical skills, experience, and procurement knowledge alongside with efficient management and decision-making become crucial for project success. The financial resource variable despite being positively related (B = 0.185, Beta = 0.185) was not statistically significant at the 0.05 level (p-value = 0.090). As such, despite its truth, the variable has very little influence as an independent variable but is practical. In relation to the detection of multicollinearity, there was no evidence of its presence since the tolerance levels were higher than 0.10 while VIF levels were less than 1.10. From the discussion above, it can be seen that DAWASA needs to work on its human resource strengths together with its top management involvement in the Force Account projects. This is in tandem with past literature such as that by Macharia et al. (2023), Fareed and Su (2022), and Zaman et al. (2022).

Conclusion

The study suggests that the main factors contributing to the success of the Force Account construction projects of DAWASA include skillfulness of staff members and the support from top management, whereas money is important, but has an insignificant effect on the outcomes of the projects. The skillfulness of the staff was shown to be the most crucial factor predicting the success of a construction project. It is essential that the project managers should have relevant skills, experience in the field of construction, as well as knowledge in procurement. Even though financial variables were not strong predictors of project success, issues such as inadequate funding, delayed release of funds, and inadequate cost control measures were cited as factors that limit the successful implementation of projects. Based on the findings of this study, the following recommendations have been proposed for improving Force Account project implementations: DAWASA must train and develop its staff members through mentorship and competence based performance management practices, policy makers should put in place proper governance structures and management controls as well as project monitoring procedures, while the government provides adequate funding and implements better financial management practices, as well as electronic procurement/project management systems.

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