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SCOPE VERIFICATION AND PERFORMANCE OF DIGITIZATION PROJECTS IN STATE AGENCIES IN KENYA

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ABSTRACT

Background: The purpose of this study was to assess the relationship between scope verification and performance of digitization projects in Kenya. The study was guided by three key theories: Theory of Constraint, Contingency theory, Theory of Change and the Systems Theory. The study employed a descriptive research design utilizing questionnaires as the primary data collection method, emphasizing a positivism philosophy grounded in quantifiable observations and statistical analysis. The target population encompassed various roles within of digitization projects, totaling 150 individuals, with a sample size of 109 determined through simple random sampling. Reliability was assessed through a pilot test, utilizing Cronbach's Alpha, and statistical techniques were employed for data analysis, including descriptive statistics, multiple regression analysis, and statistical tests such as ANOVA. The study analyzed the research question related to the influence of scope verification and performance of digitization projects in state agencies in Kenya. The study identified a substantial positive influence of scope verification on the performance of digitization projects in state agencies in Kenya as scope verification explained an impressive 36.6% of the variability in project performance ($R^2 = 0.366$, $F(1, 80) = 46.206$, $p < 0.000$). In conclusion, the study emphasizes the crucial role of scope verification in the performance of digitization projects in state agencies in, Kenya. The findings reveal a substantial positive correlation, indicating that proper scope verification significantly contributes to project performance. Based on the study findings, it is recommended that state agencies and general public should prioritize and enhance scope verification strategies to ensure the effective performance of digitization projects in Kenya. This involves fostering transparent scope validation, conducting regular project metrics and variance analysis.

Key words: Scope verification, Performance, Digitization projects, State agencies, Project success.

BACKGROUND OF THE STUDY

Scope management is the process of defining the activities, tasks, timelines, resources, and boundaries that must be met in order to achieve the set goals and objectives of the project to be executed (Ogunberu et al., 2018). Scope management practices include identifying the proper scope definition, establishing the scope decomposition, monitoring and controlling the scope changes, and validating the scope deliverables. Scope management has been one of the critical factors that have led to the failure and delay of several projects (Hashil et al., 2016). A poorly defined project scope leads to scope creep, resulting in budgetary and schedule overruns, which automatically results in project delays and failure (Mwangi & Yusuf, 2022). This, therefore, brings the need to have a clear scope management plan in order to ensure that all the stakeholders' goals and objectives are achieved in harmony. All other project management practices, such as time and cost, entirely depend on scope management (Al-Rubaiei et al., 2018b).

At the local level, digitization projects in Kenya have gained substantial traction due to the country's dedication to embracing technology and boosting digital transformation across a wide range of industries. Through the digital master plan of 2022 – 2032, Kenya outlines various digitization projects that it aims to achieve within the 10-year duration. Most of the projects outlined in the master plan were carried forward from the previous master plan that was implemented but did not achieve the expected goals and objectives. The master plan is guided by five major foundations that are all anchored in digitization, which include digital infrastructure, Digital services, products and data management, Digital skills, Digital enterprises innovation and businesses Policy, legal, and regulatory.

The global, regional, and local perspectives highlight its significance, particularly in scope verification and performance of digitization projects in Kenya

STATEMENT OF THE PROBLEM

Digitization projects in state agencies face several challenges that affect their performance and outcomes. One of these challenges is the lack of effective scope management. The problem is poor scope management during the execution of several digitization projects in state agencies in Kenya. Scope management is becoming a problem because poor scope management is one of the major reasons for delays, budget overruns, and failure of several projects in various state agencies in Kenya. This, in turn, hinders the realization of the intended benefits of digitization projects, adversely affecting both the state agencies and the citizens they serve (Rajala & Aaltonen, 2021). The problem is significant because digitization projects are complex and dynamic, requiring careful planning and execution to achieve the desired outcomes and impacts (Giezen, 2012). Moreover, digitization projects involve a high level of investment and risk and multiple stakeholders with diverse interests and expectations.

Previous studies have not comprehensively explored the relationship between scope verification and performance of digitization projects in Kenya. While some studies focus on specific aspects of scope verification (Hans, 2013 and Mahmoud, 2018), others lack a holistic examination of scope verification. This research aims to address these gaps by examining the relationship between scope verification and performance of digitization projects in Kenya.

SPECIFIC OBJECTIVE

i). To assess the relationship between scope verification and performance of digitization projects in State agencies, Kenya

RESEARCH QUESTION

i). To what extent does scope verification influence the performance of digitization projects in State agencies in Kenya?

THEORETICAL FRAMEWORK

In recent years, digitization projects in Kenya have gained substantial traction due to the country's dedication to embracing technology and boosting digital transformation across a wide range of industries. The Kenya National Bureau of Statistics (KNBS) has carried out research that sheds light on the rising relevance of digitization in Kenya. There was a 5.6% increase in the information and communications technology (ICT) industry in Kenya in 2020 (Kenya National Bureau of Statistics, 2021).The challenge lies in articulating the repercussions of improper project validation, variance analysis and poorly guided project metrics that greatly affect the performance of digitization projects in State agencies in Kenya.

Dr. Eliyahu Goldratt,'s Theory of Constraints developed in the 1980s, serves as a valuable tool for evaluating projects by mapping out cause-and-effect relationships. In the context of the assessing the relationship between scope verification and performance of digitization projects in State agencies, in Kenya's Dr. Eliyahu Goldratt,'s Theory of Constraints provides a structured approach to which it is a management concept that, in its most basic form, aims to assist organizations in accomplishing their objectives. The theory provides a structured approach to understanding how different stakeholder interactions impact project outcomes. It helps unravel the intricate web of relationships and dynamics involved in ensuring project success.

The theory of change, emerging in the 1990s, establishes the long-term objectives and then works backward to determine the prerequisite circumstances (Connel & Kubisch, 1998). Applied to the present topic, this theory offers insights into how scope verification serves as a catalyst for change within the context of digitization projects. It highlights the need for a comprehensive understanding of the socio-economic landscape to drive effective project implementation.

The contingency theory is a fundamental idea that acknowledges the complexity of many systems, including organizations and projects. The contingency theory is an organizational theory that asserts there is no optimal method to structure a business, govern a firm, or make choices. This view is central to the contingency theory (Otley, 2016). This theory helps illuminate the operational dimensions of scope verification and its impact on the actual implementation of digitization projects. Therefore, these theories collectively contribute to our understanding of how scope verification shapes the trajectory of digitization projects in State agencies in Kenya. By providing frameworks for evaluating cause-and-effect relationships, addressing complex social issues, and emphasizing the execution and control facets of project management, these theories enhance our insights into the dynamics at play in the successful implementation of such projects. The relevance lies in their ability to guide and inform strategies that harness scope verification for optimal project outcomes in the specific context of digitization projects in State agencies in Kenya.

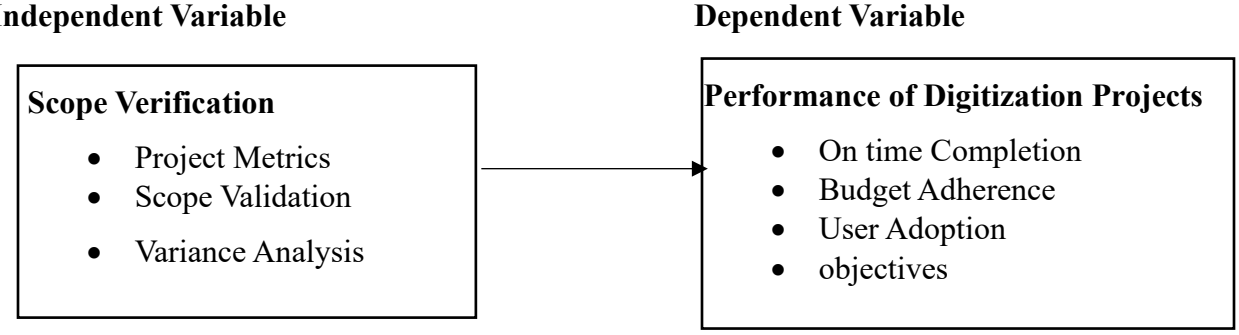
EMPIRICAL REVIEW

Scope verification is a process that includes checking whether the deliverables meet the requirements, quality, and other standards that were defined during the scope definition process and the outlined acceptance criteria. Generally, it is a procedural review of the project scope statement to ensure that it meets the required specifications. Scope verification helps prevent rework and can and this can act as a tool for project scope control (Hans, 2013). Several organizations have adopted various methods of scope verification such as inspection which helps

them conduct the verification purposes. It can always be done at different phases of the project or at the end of the project depending on the size and complexity of the project.

A study conducted by (Mahmoud, 2018) recommends that it is very critical to for the project managers to always verify the project scope against the final requirements of the already met deliverables. It should be done with caution and without biasness in order to ensure everything is in line. Scope verifications also helps in the scope control processes as it can be used to identify changes within the projects that are not in line with what was initially outlined in the project scope statement. A study conducted by (T. Hans, 2013) challenged the project managers on how are they going to ensure that the final project meets the requirements. This only leaves project scope verification as the perfect method of ensuring all the requirements are met hence showing how important project scope verification is in ensuring project success.

CONCEPTUAL FRAMEWORK



RESEARCH METHODOLOGY

The study employed a descriptive research design utilizing questionnaires as the primary data collection method, emphasizing a positivism philosophy grounded in quantifiable observations and statistical analysis. The target population encompassed various roles within digitization projects, totaling 150 individuals, with a sample size of 109 determined through simple random sampling. Reliability was assessed through a pilot test, utilizing Cronbach's Alpha, and statistical techniques were employed for data analysis, including descriptive statistics, multiple regression analysis, and statistical tests such as ANOVA. The study analyzed the research question related to the influence of Scope verification and performance of digitization projects. Ethical considerations incorporated obtaining consent, ensuring confidentiality, and treating respondents with respect. These statistical methods provided a robust framework for analyzing the relationship between scope verification and performance of digitization projects in Kenya

RESEARCH RESULTS AND DISCUSSION

The purpose of the study was to assess the influence between scope verification and performance of digitization projects in Kenya

Descriptive statistics

Scope Verification

Scope verification was is the independent variable for the current study. The respondents were asked to indicate their level of agreement on various statements relating to the relationship between scope verification and performance of digitization projects in state agencies in Kenya. A Likert scale of 1-5 was used, where 1 was strongly disagree, 2 was disagree, 3 was neutral, 4 was agree,

and 5 was strongly agree. The table below shows the descriptive statistics of the analyzed data, which are represented using percentages.

Table 4. 1 Scope Verification

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Descriptive Statistics	
						Mean	SD
The chosen project metrics accurately measured progress toward achieving the defined project scope.	2.4%	43.9%	26.8%	26.8%	0.0%	2.78	.88
The metrics were tracked regularly and used to identify potential scope deviations early in the project lifecycle.	0.0%	52.4%	32.9%	14.6%	0.0%	2.62	.73
A formal process existed for validating that project deliverables meet the specified requirements and scope.	0.0%	28.0%	36.6%	34.1%	1.2%	3.09	.82
Stakeholders were involved in the scope validation process to ensure their acceptance of the deliverables.	0.0%	29.3%	34.1%	36.6%	0.0%	3.07	.81
Variances between the planned scope and actual results were analyzed promptly to identify root causes.	2.4%	25.6%	56.1%	11.0%	4.9%	2.90	.81
Lessons learned from variance analysis were applied to improve future scope planning and control processes.	0.0%	28.0%	47.6%	17.1%	7.3%	3.04	.87

According to the findings, 46.3% of the respondents disagreed that the chosen project metrics accurately measured progress towards achieving the defined project scope. 26.8% of the respondents remained neutral while 26.8% of the respondents agreed that the chosen project metrics accurately measured progress towards achieving the defined project scope. The result clearly shows that, for the various projects the respondents have managed, the chosen project metrics did not accurately measure progress towards achieving the defined project scope.

According to the findings, 52.4% of the respondents disagreed that the metrics were tracked regularly and were also not used to identify potential scope deviations early in the project lifecycle. 32.9% of the respondents remained neutral while 14.6% of the respondents agreed that metrics were tracked regularly and were used to identify potential scope deviations early in the project lifecycle. This clearly show that, for the various projects the respondents have managed, metrics were tracked regularly and were also not used to identify potential scope deviations early in the project lifecycle.

The respondents (28%) also disagreed that a formal process existed for validating that project deliverables meet the specified requirements and scope. 36.6% of the respondents remained neutral while 35.3% of the respondents agreed that a formal process existed for validating that project deliverables meet the specified requirements and scope. The findings imply that, for the various projects the respondents have managed, although sometimes it existed, not every time a formal process existed for validating that project deliverables meet the specified requirements and scope.

The findings also indicated that 36.6% of the respondents agreed that stakeholders were involved in the scope validation process to ensure their acceptance of the deliverables. Also, 36.6% of the respondents remained neutral while 29.3% of the respondents disagreed that scope audits were

conducted regularly to verify that project deliverables meet the defined requirements and scope. This implies that, for the various projects the respondents have managed, stakeholders were involved in the scope validation process to ensure their acceptance of the deliverables.
The findings also found out that 28% of the respondents disagreed that the variances between the planned scope and actual results were analyzed promptly to identify root causes. 56.1% of the respondents remained neutral while 15.9% of the respondents agreed that, the variances between the planned scope and actual results were analyzed promptly to identify root causes. The results clearly show that, although variance analysis was done, sometimes variances between the planned scope and actual results were not analyzed promptly to identify root causes.

Inferential Statistics

The objectives for this study was to assess the relationship between scope verification and performance of digitization projects in State agencies, Kenya. To achieve these objectives; coefficient of determination (R^2), Change in R^2, analysis of variance (ANOVA) as well as model coefficients were generated.

Influence of Scope Verification on Performance of Digitization Projects in State Agencies in Kenya.

The research question was stated as follows:

To what extent does scope verification influence the performance of digitization projects in State agencies in Kenya?

Table 4. 2 Model Summary for Scope Verification

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.605[a]	.366	.358	.38877

a. Predictors: (Constant), Scope Verification

Scope verification was found to be a very important variable in ensuring that there is performance of digitization projects in Kenya. This is supported from the results found, where the R square (0.366) which is also known as the coefficient of determination explains 36.6% of the variations in the dependent variable which is performance of digitization projects hence the relationship of the variables is satisfactory. The model summary indicates that scope verification is an important factor in predicting the performance of digitization projects.

Analysis of Variance

Table 4. 3 Analysis of Variance for Scope Verification

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	6.984	1	6.984	46.206	.000[b]
	Residual	12.091	80	.151		
	Total	19.075	81			

a. Dependent Variable: Performance of Digitization Projects

b. Predictors: (Constant), Scope Verification

From the results above, the F value (46.206) is greater than the F critical (3.96) which indicates that the model explains a significant portion of the variance in the dependent variable. The p value (0.000) is also less than 0.05 therefore this confirms that there is a strong statistical significance. Therefore, from the findings, scope verification is a significant predictor of the performance of digitization projects. Properly verifying the scope of digitization projects can have a substantial impact on their performance, as indicated by the statistical significance of the model.

Regression Coefficient Analysis

Table 4. 4 Regression Coefficient Analysis for Scope Verification

Coefficients[a]

		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	.877	.268		3.272	.002
	Scope Verification	.617	.091	.605	6.798	.000

a. Dependent Variable: Performance of Digitization Projects

The study assessed the beta coefficient of Scope verification in relation to the Performance of Digitization Projects. The beta coefficient was found to be 0.563, with a p-value of 0.000, which is below 0.05 significance level. Therefore, there is a positive and significant relationship between Scope verification and Performance of Digitization Projects (β=0.877, p<0.000). The regression model is as follows:

$Y=0.877 + 0.617X_1$

Whereby,

Y - Performance of Digitization Projects

X_1 - Scope Verification

The coefficients table indicates that Scope verification has a significant and positive impact on the Performance of Digitization Projects. The relationship is both statistically significant and practically meaningful, as evidenced by the significant p-values and the magnitude of the coefficients. This is in line with the research findings by Ahmed (2023), who argues that in order to ascertain the effectiveness and efficiency of the project, performance can be measured using metrics that can help them gauge the project performance. The findings were also supported by Kerzner (2022) argues that the future of project management may very well be metric driven due to the complexity of projects which will force project managers to better understand how to identify, select, measure, report project metrics showing value creation. Therefore, the author acknowledges the need of scope verification in measuring project performance. Therefore, through the evidence from the results and various research conducted, it is clear that there is positive and significant correlation between scope verification and project performance.

CONCLUSION OF THE STUDY

In conclusion, this study underscores the pivotal role of scope verification in shaping the performance of digitization projects in State agencies in Kenya. The study also established that there is a positive correlation between scope verification and performance of digitization projects in state agencies in Kenya. Regularly verifying the project scope to ensure deliverables meet the defined requirements is vital for the effective performance of digitization projects. Scope verification involves stakeholders in the validation process, ensuring that the project outcomes

align with their expectations and requirements. By conducting regular scope audits and reviews, project managers can identify any deviations from the planned scope early and take corrective actions promptly, thereby maintaining the integrity and quality of the project deliverables.

RECOMMENDATIONS

Based on the study findings, it is recommended that, regular scope audits is necessary to verify that project deliverables meet the defined requirements and scope. These audits help identify any deviations early, allowing for timely corrective actions. Involving stakeholders in the scope verification process ensures that the deliverables align with their expectations and requirements, which can be achieved through regular feedback sessions and validation workshops. Defining clear acceptance criteria for each deliverable, agreed upon by all stakeholders, is essential for evaluating whether the deliverables meet the project's objectives. Utilizing the results of scope audits to identify necessary corrective actions or adjustments to the project scope helps ensure that the project remains aligned with its objectives and stakeholder expectation

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