

Project Managers' Competencies and Project Success of Hargeisa Water Agency in Hargeisa District, Somalia

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ABSTRACT

Introduction: Project managers' competencies are critical determinants of project success, yet limited research exists examining this relationship in the context of water projects in post-conflict settings. This study investigated the relationship between project managers' competencies, specifically knowledge, skills, and experience and project success of Hargeisa Water Agency in Hargeisa District, Somalia.

Methods: An explanatory sequential mixed-methods design was employed. The quantitative phase surveyed 186 respondents drawn from a target population of 420 using stratified sampling techniques. Validated instruments achieved Cronbach alpha values ranging from 0.768 to 0.952. The qualitative phase included eight in-depth interviews with purposively selected project stakeholders to elaborate on quantitative findings.

Results: Respondents rated all three competency dimensions highly, with mean scores of 4.23 for knowledge, 4.25 for skills, and 4.06 for experience on a 5-point scale. Pearson correlation analysis revealed significant positive relationships between each competency dimension and project success: knowledge ($r=0.685$, $p<0.001$), skills ($r=0.816$, $p<0.001$), and experience ($r=0.705$, $p<0.001$). Skills demonstrated the strongest association with project success. Qualitative findings corroborated these relationships, highlighting communication, problem-solving, and adaptive leadership as key mechanisms.

Conclusions: Project managers' competencies are strongly associated with water project success in the Hargeisa context, with project management skills emerging as the most critical dimension. Strengthening competency development programs for project managers in water sector agencies is recommended to enhance project outcomes.

I. INTRODUCTION

Project success remains a central concern in development project management, particularly in fragile and post-conflict environments where resource constraints and institutional challenges are pronounced. Among the various factors identified as critical to project success, the competencies of project managers have received increasing attention from researchers and practitioners alike. Competencies encompass the knowledge, skills, and experience that project managers bring to their roles, and these attributes are widely recognized as foundational to effective project planning, execution, monitoring, and stakeholder management.

The literature on project manager competencies and project success has grown substantially over recent decades. The Project Management Institute (PMI, 2017) identifies a comprehensive set of knowledge areas and process groups that form the basis of project management competence. Several empirical studies have examined the relationship between specific competency domains and project outcomes. Bond (2015) quantitatively demonstrated the relationship between project managers' leadership styles, years of experience, and critical success factors. Blaskovics (2016) investigated the impact of project managers on project success in the ICT sector, finding significant associations. Similarly, Radujković and Sjekavica (2017) identified project management success factors, while Mariam et al. (2022) explored knowledge-oriented leadership and team cohesion as mechanisms linking competencies to project success.

Despite this growing body of evidence, important gaps remain. Most studies examining the relationship between project managers' competencies and project success have concentrated on construction industries, manufacturing, and information technology projects. Limited research has focused on water sector projects, particularly in the Somali context. Furthermore, the existing literature has often examined competency

dimensions in isolation rather than considering the integrated effects of knowledge, skills, and experience simultaneously.

The Hargeisa Water Agency is responsible for water supply and management in Hargeisa District, Somalia, a region characterized by significant development challenges and ongoing recovery from conflict. The Somaliland Development Fund (SDF, 2020) and UN-HABITAT (2022) have documented water supply upgrading projects in Hargeisa, yet little is known about the project management competencies that contribute to success in this unique context.

This study aimed to fill the conceptual gap by examining the relationship between project managers' competencies specifically knowledge, skills, and experience and project success at the Hargeisa Water Agency. The study was guided by an explanatory sequential design, allowing quantitative findings to be elaborated through qualitative insights from project stakeholders.

The conceptual framework for this study positioned knowledge, skills, and experience as independent variables influencing project success, with project success operationalized through time, budget, and quality dimensions. Additionally, organizational culture, project complexity, and stakeholder engagement were considered as contextual factors.

II. METHODS

This study employed an explanatory sequential mixed-methods research design. The explanatory sequential design involved two distinct phases: first collecting and analyzing quantitative data, followed by qualitative data collection and analysis to explain and elaborate on the quantitative findings. This approach was appropriate because it allowed the researcher to build on the quantitative findings by incorporating qualitative insights, enhancing the depth and validity of the study by ensuring that statistical relationships were not only identified but also understood in context. The integration of quantitative and qualitative data occurred during the interpretation stage, employing an explanatory logic where the qualitative findings provided a detailed explanation of the trends.

The study was conducted at the Hargeisa Water Agency in Hargeisa District, Somalia. The agency is responsible for urban water supply and management in the region, implementing projects funded by various development partners including the Somaliland Development Fund and UN-HABITAT (SDF, 2020; UN-HABITAT, 2022; UNICEF, 2021).

The target population comprised 420 individuals across four categories: project stakeholders, project managers/project staff, Hargeisa Water Agency staff, and project beneficiaries. The sample size was calculated at 201 respondents using stratified sampling techniques. Structured questionnaires and semi-structured interview guides were used for data collection. The questionnaire items measured three independent variables (knowledge, skills, experience) and the dependent variable (project success). All items were measured on a 5-point Likert scale. Quantitative data were analyzed using descriptive statistics and Pearson correlation coefficients while qualitative data from interviews were analyzed thematically to identify patterns and explanations that complemented the quantitative findings.

III. RESULTS

Response rate

Out of the 191 questionnaires distributed, 186 were successfully completed and returned, representing a questionnaire response rate of 97.4%. Similarly, of the 10 interview guides administered to key informants, 8 interviews were successfully conducted, representing an interview response rate of 80.0%. Overall, 194 out of the targeted 201 respondents participated in the study, yielding an overall response rate of 96.5%. This response rate is considered excellent and exceeds the minimum threshold of 70% commonly recommended for survey research, suggesting that the data collected are sufficiently representative, reliable, and adequate for meaningful analysis and generalization of the study findings while minimizing the risk of non-response bias.

Project managers' knowledge and project success

Respondents assessed project managers' knowledge using five items. The overall mean score for knowledge was 4.23 which, according to the interpretation scale, corresponds to "Very High" (mean range 5-4.21 = Strongly Agree/Very High).

Table 4.1: Descriptive analysis for project managers' knowledge in Hargeisa Water Agency in Hargeisa district, Somalia

Statements	Strongly disagree	Disagree	Not sure	Agree	Strongly agree	Mean
Makes judgments based on reasonable assumptions, and is aware of the impact of such assumptions.	8(4.3%)	19(10.2%)	6(3.2%)	57(30.6%)	96(51.6%)	4.15
A project manager's knowledge and expertise can directly influence project outcomes.	7(3.8%)	10(5.4%)	6(3.2%)	63(33.9%)	100(53.8%)	4.28
Identifies opportunities and threats, and is sensitive to stakeholder's needs.	6(3.2%)	13(7.0%)	6(3.2%)	54(29.0%)	107(57.5%)	4.31
Has sound priorities for future work while being able to expect the impact of external and internal changes on the vision.	10(5.4%)	11(5.9%)	5(2.7%)	61(32.8%)	99(53.2%)	4.23
Has the Knowledge to understand the decision-making process outside the organisation (clients, vendors, other outside stakeholders).	10(5.4%)	15(8.1%)	6(3.2%)	54(29.0%)	101(54.3%)	4.19
Average						4.23

Source: Primary data (2025)

The highest-rated knowledge item was "Identifies opportunities and threats, and is sensitive to stakeholder's needs" (Mean=4.31), followed by "A project manager's knowledge and expertise can directly influence project outcomes" (Mean=4.28). These findings indicate that respondents perceived project managers at Hargeisa Water Agency as having strong knowledge competencies, particularly in stakeholder sensitivity and understanding the impact of their expertise on project outcomes.

Correlation analysis

Pearson correlation analysis was conducted to examine the relationship between each competency dimension and project success.

Table 4.2 presents the correlation between knowledge and project success.

Table 4.2: Pearson's Linear Correlation Coefficient between project manager's knowledge and project success

		Project managers' knowledge	Project success
Project managers' knowledge	Pearson Correlation	1	.685**
	Sig. (2-tailed)		.000
	N	186	186
Project success	Pearson Correlation	.685**	1
	Sig. (2-tailed)	.000	
	N	186	186

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

From Table 4.2, it was indicated that a significant positive correlation was found between project managers' knowledge and project success ($r=0.685$, $p=0.000$). According to Cohen's conventions, this represents a large effect size, indicating that higher levels of knowledge are strongly associated with higher levels of project success.

Project managers' skills and project success

The skills dimension yielded an overall mean score of 4.25 also corresponding to "Very High" on the interpretation scale.

Table 4.3: Descriptive analysis of project managers' skills in Hargeisa Water Agency in Hargeisa district, Somalia

Statements	Strongly disagree	Disagree	Not sure	Agree	Strongly agree	Mean
The project manager communicates with their teams frequently.	12(6.5%)	11(5.9%)	10(5.4%)	53(28.5%)	100(53.8%)	4.17
Uses creative thinking process to solve problems.	8(4.3%)	5(2.7%)	7(3.8%)	57(30.6%)	109(58.6%)	4.37
Performs consistently in a range of situations under pressure and adapts behavior appropriately.	7(3.8%)	13(7.0%)	7(3.8%)	60(32.3%)	99(53.2%)	4.24
Provides direction to inspire others.	9(4.8%)	4(2.2%)	6(3.2%)	60(32.3%)	107(57.5%)	4.35
Has the skills to use project management methodologies (process analysis and systems design).	9(4.8%)	13(7.0%)	6(3.2%)	71(38.2)	87(46.8%)	4.15
Average						4.25

Source: Primary data (2025)

The highest-rated skill item was "Uses creative thinking process to solve problems" (Mean=4.37), closely followed by "Provides direction to inspire others" (Mean=4.35). Both items exceed the threshold for "Very High," suggesting that project managers are perceived as skilled in creative problem-solving and inspirational leadership.

Table 4.4: Pearson's Linear Correlation Coefficient between project manager's skills and project success

	Project managers' skills	Project success
Project managers' skills	1	.816**
Sig. (2-tailed)		.000
N	186	186
Project success	.816**	1
Sig. (2-tailed)	.000	
N	186	186

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

Table 4.4 revealed that a stronger significant positive correlation was found between project managers' skills and project success ($r=0.816$, $p<0.001$). This very large effect size suggests that project management skills have the strongest association with project success among the three competency dimensions examined.

Project managers' experience and project success

The experience dimension had an overall mean score of 4.06 corresponding to "High" on the interpretation scale (4.20-3.41 = Agree/High).

Table 4.5: Descriptive analysis of project managers' experience in Hargeisa Water Agency in Hargeisa district, Somalia.

Statements	Strongly disagree	Disagree	Not sure	Agree	Strongly agree	Mean
The project managers use mind mapping to map objectives and milestones.	13(7.0%)	34(18.3%)	4(2.2%)	54(29.0%)	81(43.5%)	3.84
Willing to make decisions involving significant risk to gain a business advantage.	9(4.8%)	10(5.4%)	6(3.2%)	58(31.2%)	103(55.4%)	4.27
The project manager's experience itself is not a factor in project success.	7(3.8%)	8(4.3%)	4(2.2%)	57(30.6%)	110(59.1%)	4.37
The Project Manager's experience is the utmost factor in project success.	13(7.0%)	26(14.0%)	3(1.6%)	61(32.8%)	83(44.6%)	3.94
Knows his team members' strengths and weaknesses and encourages them to take on challenging tasks.	14(7.5%)	25(13.4%)	7(3.8%)	55(29.6%)	85(45.7%)	3.92
Average						4.06

Source: Primary data (2025)

The highest-rated experience item was "The project manager's experience itself is not a factor in project success" (Mean=4.37), which was a negatively worded item, indicating disagreement with the statement that experience is not a factor. This suggests that respondents strongly believe experience matters. The item "Willing to make decisions involving significant risk to gain a business advantage" also scored high (Mean=4.27), indicating perceived willingness to take calculated risks.

Table 4.6: Pearson's Linear Correlation Coefficient between project manager's experience and project success

		Project managers' experience	Project success
Project managers' experience	Pearson Correlation	1	.705**
	Sig. (2-tailed)		.000
	N	186	186
Project success	Pearson Correlation	.705**	1
	Sig. (2-tailed)	.000	
	N	186	186

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

A significant positive correlation was found between project managers' experience and project success ($r=0.705$, $p<0.001$). This large effect size indicates a strong relationship between experiential knowledge and project outcomes.

Qualitative findings

The qualitative phase involved eight in-depth interviews with project stakeholders. Thematic analysis revealed several key mechanisms through which project managers' competencies influence project success.

Communication as a mediating competency: Interviewees consistently emphasized that effective communication enabled project managers to articulate project goals, coordinate team efforts, and maintain stakeholder alignment. One respondent noted that project managers who communicated frequently and transparently were better able to anticipate and resolve conflicts before they escalated.

Problem-solving and adaptive leadership: Respondents highlighted creative problem-solving as a distinguishing competency. Project managers who demonstrated flexibility in adapting their approaches to changing circumstances were perceived as more effective in maintaining project momentum despite challenges.

Knowledge of local context: Stakeholder sensitivity and understanding of local decision-making processes were identified as critical knowledge components. Project managers who understood the socio-political landscape of Hargeisa were better positioned to navigate institutional complexities and secure necessary

approvals.

The role of experience: While quantitative findings showed experience had a slightly lower mean score, qualitative data suggested that experience was valued not as a standalone factor but in how it informed judgment, risk assessment, and the ability to mentor team members.

These qualitative insights corroborate the quantitative results, providing contextual understanding of how knowledge, skills, and experience translate into project success in the Hargeisa Water Agency context.

Discussion

This study examined the relationship between project managers' competencies, knowledge, skills, and experience and project success at the Hargeisa Water Agency in Hargeisa District, Somalia. The findings provide compelling evidence that all three competency dimensions are significantly associated with project success, with skills demonstrating the strongest relationship.

Project manager's knowledge and project success

The significant positive correlation between project managers' knowledge and project success ($r=0.685$, $p<0.001$) aligns with established literature emphasizing the foundational role of knowledge in project management. PMI (2017) identifies knowledge areas including scope, time, cost, quality, risk, and stakeholder management as essential for project success. The high mean score (4.23) for knowledge in this study indicates that respondents perceive project managers at Hargeisa Water Agency as possessing strong knowledge competencies, particularly in stakeholder sensitivity and understanding the impact of their expertise.

This finding is consistent with Mariam et al. (2022), who found that knowledge-oriented leadership enhances team cohesion and project success. The qualitative findings further elucidate this relationship, suggesting that knowledge of local context and decision-making processes enables project managers to navigate institutional complexities effectively a critical competency in the Somaliland institutional environment (UNICEF, 2021).

Project manager's skills and project success

The strongest correlation in this study was between project managers' skills and project success ($r=0.816$, $p<0.001$). This finding corroborates research by Araujo and Pedron (2016), who emphasized the importance of soft skills, and Gillard (2019), who highlighted that effective project managers require both technical expertise and interpersonal competencies.

Creative thinking and problem-solving emerged as the highest-rated skill item (mean=4.37), followed by providing direction to inspire others (mean=4.35). These findings align with Liikamaa (2015), who identified the most important project manager competencies as including problem-solving, leadership, and communication skills. The qualitative data reinforced these quantitative findings, with interviewees highlighting communication and adaptive leadership as critical mechanisms linking skills to project outcomes.

The particular strength of the skills–success relationship in the Hargeisa context may reflect the challenging operational environment, where project managers must frequently adapt plans, negotiate with diverse stakeholders, and motivate teams working under difficult conditions. This interpretation is consistent with research by Blaskovics (2016), who found that project managers' impact on success is amplified in complex, resource-constrained settings.

Project manager's experience and project success

The significant positive correlation between experience and project success ($r=0.705$, $p<0.001$) supports findings by Bond (2015), who demonstrated that years of experience contribute to project success. However, the mean score for experience (4.06) was slightly lower than for knowledge and skills, and the qualitative data suggested a nuanced perspective: experience was valued not for its own sake but for how it informed judgment, risk assessment, and mentoring capabilities.

Interestingly, the item "The project manager's experience itself is not a factor in project success" had the highest mean (4.37), indicating strong disagreement with the notion that experience is irrelevant. This apparent paradox where experience is highly valued yet its mean score is lower may reflect the reality that experience alone is insufficient without corresponding knowledge and skills. This interpretation aligns with Ekrot et al. (2016), who found that retaining project management competence requires ongoing development rather than relying solely on accumulated experience.

Comparative importance of competency dimensions

The finding that skills showed the strongest correlation with project success ($r=0.816$), followed by experience ($r=0.705$) and knowledge ($r=0.685$), has important implications. This hierarchy suggests that while knowledge provides the foundation for project management, it is the application of skills that most directly influences project outcomes. This interpretation is consistent with research by Achara (2016) and Khamaksorn (2016), who emphasized that project management knowledge, must be complemented by practical skills for effective project delivery.

The strong performance of skills relative to knowledge and experience may be particularly relevant in the water sector context, where projects often involve multiple stakeholders, complex technical

requirements, and dynamic implementation environments. These conditions demand adaptive, communicative, and leadership-oriented competencies that are characteristic of well-developed project management skills.

Contribution to the Literature

This study contributes to the literature on project manager competencies in several ways. First, it extends the empirical evidence to the water sector in a post-conflict setting, addressing a gap identified in previous research that focused predominantly on construction, manufacturing, and ICT projects. Second, by examining knowledge, skills, and experience simultaneously within a single study, it provides a more integrated understanding of how these competency dimensions collectively relate to project success. Third, the mixed-methods design allowed for both quantification of relationships and qualitative exploration of mechanisms, enhancing the depth of findings.

Limitations

Several limitations should be considered when interpreting these findings.

Geographic and institutional scope: The study was limited to the Hargeisa Water Agency in Hargeisa District, Somalia. Findings may not be generalizable to other water agencies in Somalia or other post-conflict contexts with different institutional arrangements and operational environments.

Cross-sectional design: Data were collected at a single point in time, limiting the ability to establish causal relationships between project managers' competencies and project success. While the explanatory sequential design provided qualitative depth, longitudinal research would strengthen causal inferences.

Self-report and perceptual measures: Both competency assessments and project success ratings were based on respondents' perceptions rather than objective measures. Future research could incorporate objective project performance indicators and multi-rater competency assessments.

Sample size and composition: Although the sample of 186 survey respondents and eight interviewees provided adequate statistical power for correlation analysis, the sample was drawn from a single organization. Replication across multiple water agencies and regions would enhance external validity.

Potential response bias: The high response rate (97.38% for questionnaires) may reflect respondents' familiarity with the researchers or perceived pressure to participate, potentially introducing social desirability bias in responses.

Conceptualization of project success: Project success was operationalized primarily through time, budget, and quality dimensions. Broader conceptualizations incorporating stakeholder satisfaction, long-term sustainability, and development impact might yield different relationships with competency dimensions.

Conclusion and Recommendations

Conclusion

This study provides empirical evidence of significant positive relationships between project managers' competencies knowledge, skills, and experience and project success at the Hargeisa Water Agency in Hargeisa District, Somalia. Among the three competency dimensions examined, project management skills demonstrated the strongest association with project success, followed by experience and knowledge. These findings underscore the importance of developing and nurturing project management competencies as a strategy for enhancing water project outcomes in the Somaliland context.

Recommendations

Based on the findings, the following recommendations are made:

- The Hargeisa Water Agency should invest in structured competency development programs for project managers, with particular emphasis on strengthening project management skills including communication, creative problem-solving, leadership, and stakeholder management.
- The project officials should establish formal knowledge management systems would help capture and disseminate project management knowledge across the organization, leveraging the expertise of experienced project managers to build organizational capacity.
- The Hargeisa Water Agency should incorporate competency assessment into project manager selection and promotion processes, using validated instruments to evaluate knowledge, skills, and experience relevant to water project management.
- Given the importance of experience in informing judgment and risk assessment, the agency should implement mentorship programs pairing less experienced project managers with seasoned professionals to facilitate experiential learning.
- The high ratings for stakeholder sensitivity suggest that targeted training in stakeholder analysis and engagement could further enhance project outcomes, particularly in the complex multi-stakeholder environment characteristic of water sector projects.

- The agency should develop monitoring and evaluation mechanisms for systematically tracking the relationship between project manager competencies and project performance indicators, enabling evidence-based refinement of competency development investments.
- Further research: Replication studies across multiple water agencies in Somalia and other post-conflict contexts would strengthen the evidence base and identify context-specific competency requirements.

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