Factors of Knowledge Management That Influence Project Management Success in the UAE Oil And Gas Industry

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Abstract

This study investigates the role of knowledge management in enhancing project success within the oil and gas sector, with a focus on Abu Dhabi National Oil Company (ADNOC). Project management success is increasingly recognised as a multidimensional concept that extends beyond the traditional constraints of time, cost, and quality to encompass stakeholder satisfaction, organisational learning, and long-term strategic impact. To explore this, the research examined five key dimensions of knowledge management which are Knowledge Leadership, Knowledge Culture, Knowledge Processes, Knowledge Technology, and Knowledge Sharing. A purposive sampling technique was employed to ensure the inclusion of respondents with relevant expertise, resulting in a sample of 179 ADNOC employees directly engaged in project management activities. Data were analysed in two stages: first, normality was assessed using skewness and kurtosis values, confirming the suitability of the dataset for statistical testing; second, descriptive statistics were examined through mean scores derived from Likert-scale responses. The findings revealed that employees generally perceive ADNOC as supportive of knowledge management practices. Knowledge Leadership, Culture, Processes, and Sharing were consistently rated positively, highlighting strengths in organisational support, reward systems, documentation, expertise, and collaborative

behaviours. However, Knowledge Technology showed greater variation, with weaker engagement in external sharing and active technology-based participation, indicating areas for improvement. Overall, the study concludes that ADNOC has established a strong foundation for knowledge management, but further reinforcement in technological adoption, collaboration, and collective knowledge confidence is required to fully embed knowledge practices and achieve sustainable project success.

Keywords: knowledge management, project success, oil and gas industry, ADNOC

1. Introduction

Project management success in the UAE oil and gas industry is increasingly shaped by the effective application of knowledge management (KM) practices. Given the sector's complexity, high risk, and resource-intensive nature, the ability to capture, share, and utilize knowledge has become a critical determinant of project outcomes (Al Mansoori, Rahman, & Kasim, 2020; Al Marzouqi et al., 2016). This study therefore seeks to identify the relevant dimensions of KM within the UAE context and examine their impact on project management success.

Drawing from the literature, five key dimensions of KM have been recognized as particularly significant: Knowledge Leadership, Knowledge Culture, Knowledge Processes, Knowledge Technology, and Knowledge Sharing (Alyammahi, Hilmi, Abudaqa, & Almujaini, 2022; Al Hosani, 2019). Together, these dimensions represent the organizational capabilities and practices that enable project teams to generate, disseminate, and apply knowledge effectively. By investigating these factors, the study aims to provide a descriptive framework linking KM practices to project success, offering insights tailored to the unique demands of the UAE oil and gas industry.

The contemporary business environment is characterized by rapid change and uncertainty. Markets, customer demands, technology, and societal factors exert growing pressures on organizations, resulting in heightened competition, reduced budgets, and increased demands for efficiency (Alyammahi, Hilmi, Abudaqa, & Almujaini, 2022). Masa'deh et al. (2015) identify four global trends driving the need for KM: increasing domain complexity, accelerating market volatility, heightened sensitivity to change, and weakening individual experience due to high executive turnover. These dynamics underscore the importance of KM as a strategic tool for organizational resilience and adaptability.

Effective KM strengthens organizational capabilities in developing, managing, exchanging, and implementing knowledge, thereby enhancing business intelligence, improving decision-making, and ultimately achieving superior performance (Bhatt, 2002; Walczak, 2005). Rooted in organizational learning and memory, KM enables knowledge to be communicated, transformed, and transferred across individuals and teams (Irma Becerra-Fernandez, 2001). In project-based organizations, particularly in knowledge-intensive industries such as oil and gas, KM supports customer satisfaction, employee retention, cost reduction, and sustainable competitive advantage (Ameen, AlMulla, Maram, Al-Shibami, & Ghosh, 2018; Al Hassani & Sarpin, 2025).

At the same time, project management faces persistent challenges. Studies report that up to 70% of projects fail to meet time, budget, or scope requirements (Al Mansoori, Rahman, & Kasim, 2020). A key factor contributing to this high failure rate is the inadequate acquisition and transfer of knowledge from previous projects, limiting opportunities to improve future performance (Ibrahim Mohamed, 2023). Identifying and leveraging knowledge assets is therefore essential for project-based organizations seeking success in today's knowledge-driven economy.

While KM has been widely studied, definitions vary across disciplines, reflecting its interdisciplinary nature (Tsoukas & Vladimirou, 2001). Research generally emphasizes two major aspects: knowledge enablers which is organizational mechanisms that facilitate knowledge generation, sharing, and protection (Behery, Papanastassiou, & Ajmal, 2014; Al Hosani, 2019) and knowledge processes, which provide structured coordination for managing knowledge effectively (Alyammahi, Hilmi, Abudaqa, & Almujaini, 2022). Thus, this study investigates the factors of knowledge management that influence project management success in the UAE oil and gas industry.

2. Literature Review

2.1 Project Management Success from Knowledge Management Perspective

Project management success is a multidimensional concept that extends beyond the traditional focus on completing projects within the constraints of time, cost, and quality. While the classical iron triangle remains a foundational benchmark for evaluating project outcomes (Al Mansoori, Rahman, & Kasim, 2020; Al Marzouqi et al., 2016), contemporary research emphasizes that project success must also account for stakeholder satisfaction, organizational learning, and long-term strategic impact (Alyammahi, Hilmi, Abudaqa, & Almujaini, 2022; Al Hassani & Sarpin, 2025). The traditional view defines project success as the ability to deliver outputs on schedule, within budget, and at the required quality standard.

However, this narrow definition has been criticized for overlooking broader organizational and contextual factors, as projects may meet the iron triangle criteria yet fail to satisfy end-users or generate sustainable value (Al Hosani, 2019; Ameen, AlMulla, Maram, Al-Shibami, & Ghosh, 2018). This has led to the recognition that project success should be evaluated from multiple perspectives, including those of clients, contractors, and stakeholders, each of whom may interpret outcomes differently. Ibrahim Mohamed (2023) distinguishes between project management success by achieving operational efficiency within defined constraints and project success, which reflects the long-term benefits and strategic contributions of the project deliverables. This distinction highlights the importance of assessing both immediate performance and enduring impact, where success involves not only technical execution but also effective leadership, stakeholder engagement, and knowledge integration.

In the UAE oil and gas industry, project management success is particularly critical due to the sector's complexity, high capital investment, and strategic importance. Projects in this industry must balance efficiency with adaptability, ensuring that knowledge from past initiatives is captured and applied to future projects (Al Mansoori, Rahman, & Kasim, 2020). Knowledge management practices such as leadership support, cultural enablers, structured processes, technological tools, and knowledge sharing play a vital role in enhancing project success by reducing risks, improving decision-making, and fostering innovation (Al Hosani, 2019; Alyammahi, Hilmi, Abudaqa, & Almujaini, 2022).

Knowledge leadership ensures that project teams are motivated and guided to integrate lessons learned into practice, knowledge processes provide the structured mechanisms for

capturing and applying insights, knowledge culture fosters trust, collaboration, and reward systems that encourage participation, and knowledge technology offers the platforms and tools that enable efficient access, storage, and dissemination of project knowledge. Together, these four dimensions strengthen the organization's ability to achieve both immediate efficiency and long-term strategic impact, thereby embedding knowledge management as a cornerstone of project success.

2.2 Knowledge Leadership

Knowledge leadership refers to the role of organizational leaders in fostering, guiding, and sustaining knowledge management practices. Leaders are responsible for creating an environment where project team members are encouraged to participate in knowledge-related activities, supported with adequate resources, and motivated to contribute to collective learning (Al Hosani, 2019; Alyammahi, Hilmi, Abudaqa, & Almujaini, 2022). Effective knowledge leadership ensures that tacit and explicit knowledge are captured, shared, and applied to improve project outcomes. Leaders also play a critical role in aligning KM initiatives with organizational strategy, thereby enhancing innovation, adaptability, and project success (Al Hassani & Sarpin, 2025).

2.3 Knowledge Culture

Knowledge culture encompasses the values, norms, and practices within an organization that promote knowledge creation, sharing, and utilization. A strong knowledge culture is characterized by trust, collaboration, and reward systems that encourage employees to openly share experiences and lessons learned without fear of punishment (Behery, Papanastassiou, & Ajmal, 2014; Alyammahi, Hilmi, Abudaqa, & Almujaini, 2022). Organizational culture acts as a key enabler of KM implementation, influencing how knowledge flows across teams and projects (Al Hosani, 2019). In project-based environments, cultivating a supportive knowledge culture enhances collective problem-solving, reduces knowledge silos, and strengthens organizational learning.

2.4 Knowledge Processes

Knowledge processes refer to the structured activities through which knowledge is generated, captured, stored, and applied. These processes include documenting lessons learned, integrating knowledge into work practices, and updating organizational memory to ensure continuous improvement (Al Hosani, 2019; Alyammahi, Hilmi, Abudaqa, & Almujaini, 2022). Effective knowledge processes allow organizations to leverage past experiences to improve decision-making and project delivery (Al Mansoori, Rahman, & Kasim, 2020). In project management contexts, processes such as training, documentation, and knowledge retrieval are essential for reducing redundancy, enhancing efficiency, and ensuring that knowledge assets contribute directly to project success.

2.5 Knowledge Technology

Knowledge technology involves the use of information systems and digital tools to support KM activities. Advances in IT have enabled organizations to store, distribute, and manage

knowledge more effectively, providing platforms such as intranets, databases, and collaborative networks (Al Hosani, 2019; Alyammahi, Hilmi, Abudaqa, & Almujaini, 2022). These technologies facilitate both internal and external knowledge sharing, although their effectiveness depends on user engagement and organizational readiness (Al Marzouqi et al., 2016). In project-based organizations, knowledge technology supports communication, collaboration, and the integration of knowledge into project workflows, thereby enhancing project efficiency and innovation (Al Mansoori, Rahman, & Kasim, 2020).

2.6 Knowledge Sharing

Knowledge sharing is the process through which individuals exchange tacit and explicit knowledge to improve organizational learning and performance. It is considered a critical dimension of KM, as it directly links knowledge assets to project outcomes (Ameen, AlMulla, Maram, Al-Shibami, & Ghosh, 2018; Al Hosani, 2019). Sharing knowledge can occur through formal mechanisms such as reports and databases, or informal interactions such as mentoring and storytelling (Al Marzouqi et al., 2016). In project management, knowledge sharing ensures that lessons learned, expertise, and best practices are transferred across teams, reducing the likelihood of repeated mistakes and enhancing project success (Al Mansoori, Rahman, & Kasim, 2020). A culture of open sharing also strengthens collaboration, innovation, and collective problem-solving, which are vital in complex industries such as oil and gas.

3. Data Collection

The data for this study were collected through a structured questionnaire designed to capture respondents' perceptions of knowledge management factors and their influence on project management success in the UAE oil and gas industry. The questionnaire was divided into sections corresponding to the key dimensions of knowledge management: Knowledge Leadership, Knowledge Culture, Knowledge Processes, Knowledge Technology, and Knowledge Sharing (Al Hosani, 2019; Alyammahi, Hilmi, Abudaqa, & Almujaini, 2022). Responses were measured using a five-point Likert scale, ranging from 1 = Strongly Disagree to 5 = Strongly Agree. This scale was selected to provide a balanced measure of agreement and disagreement, enabling the researcher to quantify attitudes and perceptions with sufficient sensitivity for statistical analysis (Hair Jr, Matthews, Matthews, & Sarstedt, 2017).

A purposive sampling technique was employed to ensure that the study targeted respondents with relevant experience and knowledge of project management practices within the oil and gas sector. Specifically, the sample consisted of 179 employees working in ADNOC, one of the largest oil and gas companies in the United Arab Emirates (Al Marzouqi et al., 2016; Al Mansoori, Rahman, & Kasim, 2020). This approach ensured that the data were collected from individuals directly engaged in project-based activities and knowledge management practices, thereby enhancing the validity of the findings. The demographic profile of respondents is presented in Table 1.

Table 1. Demography of respondents

Category	Details	Frequency	Percent
Gender	Male	118	65.9
	Female	61	34.1
Age	18–29 year	74	41.3
	30–39 years	62	34
	40–49 years	30	16.6
	50 and above	13	7.3
Academic Qualification	Secondary Certificate	16	8.9
	Diploma	90	50.3
	Bachelor Degree	41	22.9
	Master's	31	17.3
	PhD	1	0.6

Table 1 indicates that the respondents of this study were employees working in ADNOC, one of the leading oil and gas companies in the United Arab Emirates (Al Marzouqi et al., 2016; Al Mansoori, Rahman, & Kasim, 2020). Many respondents were male (65.9%), while females accounted for 34.1%. In terms of age distribution, most respondents were relatively young, with 41.3% aged between 18–29 years and 34% aged between 30–39 years. Respondents aged 40–49 years represented 16.6%, while only 7.3% were aged 50 years and above.

Regarding academic qualifications, the largest proportion of respondents held a diploma (50.3%), followed by bachelor's degrees (22.9%) and master's degrees (17.3%). A smaller group reported having only a secondary certificate (8.9%), while just one respondent (0.6%) possessed a PhD. The demographic profile shows that ADNOC's workforce represented in this study is predominantly male, young to middle-aged, and diploma-qualified. This reflects a relatively well-educated employee base actively engaged in the UAE oil and gas sector, providing a suitable sample for examining the impact of knowledge management factors on project management success (Al Hosani, 2019; Alyammahi, Hilmi, Abudaqa, & Almujaini, 2022).

4. Results and Analysis

This section presents the results and analysis of four key knowledge management dimensions, namely Knowledge Leadership, Knowledge Processes, Knowledge Culture, and Knowledge Technology. These dimensions collectively capture the organisational practices, behaviours, and systems that underpin effective knowledge management and contribute to overall project success. To ensure the robustness of the findings, the analysis was conducted in two stages. First, the normality of the data was examined using skewness and kurtosis values, thereby confirming the suitability of the dataset for further statistical testing. Second, the descriptive statistics of respondents' perceptions were analysed through mean scores derived from the Likert-scale responses. Together, these analyses provide comprehensive insights into how

ADNOC employees perceive the organisation's knowledge management environment and the extent to which leadership, processes, culture, and technology strengthen knowledge-related practices.

4.1 Results of Knowledge Leadership

Knowledge Leadership was assessed using eight items (KL1–KL8) designed to capture respondents' perceptions of organizational support, resources, and encouragement for knowledge management activities.

Table 2. Skewness and kurtosis values

Items	KL1	KL2	KL3	KL4	KL5	KL6	KL7	KL8
Skewness	-0.912	-0.978	-0.834	-0.859	-1.097	-0.912	-0.978	-1.041
Kurtosis	0.002	-0.067	-0.458	-0.089	0.228	0.002	-0.067	0.482

Table 2 indicates that the survey items measuring Knowledge Leadership demonstrate acceptable normality, although with a noticeable negative skew. All skewness statistics are negative (ranging from -1.097 to -0.834), suggesting that the distribution of responses is left-skewed; this implies that participants generally rated the "KL" items favourably (giving higher scores) (Al Hosani, 2019; Alyammahi, Hilmi, Abudaqa, & Almujaini, 2022). However, as all skewness and kurtosis indices fall well within the recommended threshold of ±2 (Hair Jr, Matthews, Matthews, & Sarstedt, 2017; Hair, Risher, Sarstedt, & Ringle, 2019), the deviations are not significant enough to distort the analysis. Thus, the data is suitable for further testing (Al Hassani & Sarpin, 2025).

Table 3. Mean score of knowledge leadership

Codes	Questions	Frequency based on 5-points Likert Scale					Mean
		1	2	3	4	5	
KL1	I think it is important for my organisation to encourage project team members to participate in project knowledge management activities	20 (5.9%)	30 (10.7%)	40 (17.3%)	30 (20.9%)	41 (45.1%)	3.89
KL2	I always support and encourage project team members to participate in project knowledge management activities	23 (5.5%)	25 (7.8%)	33 (19.5%)	45 (29.5%)	36 (37.8%)	3.86
KL3	I provide most of the necessary help and resources for project team members to participate in project knowledge management activities	29 (6.9%)	19 (4.5%)	32 (18.8%)	35 (19.5%)	70 (50.4%)	4.02
KL4	I am keen to see that employees are happy to participate in project knowledge management activities	20 (5.9%)	25 (9.0%)	33 (15.2%)	35 (35.4%)	34 (34.4%)	3.83
KL5	I have sufficient resources for project team members to participate in project knowledge management activities	16 (3.8%)	23 (9.0%)	37 (16.4%)	39 (22.6%)	45 (48.2%)	4.02
KL6	I have sufficient financial resources for building an ICT system (hardware and software) to support project team members in managing project knowledge	19 (6.4%)	15 (4.5%)	36 (18.1%)	45 (34.7%)	47 (36.3%)	3.90
KL7	I have sufficient skilled project team members to perform project knowledge management activities	18 (6.4%)	22 (7.6%)	32 (15.4%)	41 (22.3%)	48 (48.2%)	3.98
KL8	I provide time for project team members to perform project knowledge management activities	12 (3.3%)	23 (6.9%)	39 (19.7%)	42 (33.3%)	45 (36.8%)	3.93

Table 3 indicates that respondents generally expressed positive perceptions toward the Knowledge Leadership dimension of knowledge management. The mean scores for all eight items ranged between 3.83 and 4.02, which fall within the agree to strongly agree interval on the Likert scale (Al Hosani, 2019; Alyammahi, Hilmi, Abudaqa, & Almujaini, 2022).

Among the items, KL3 ("I provide most of the necessary help and resources for project team members to participate in project knowledge management activities") and KL5 ("I have

sufficient resources for project team members to participate in project knowledge management activities") recorded the highest mean scores of 4.02, suggesting that respondents strongly acknowledged the availability of resources and support for knowledge management activities. Similarly, KL7 ("I have sufficient skilled project team members to perform project knowledge management activities") also scored highly at 3.98, reflecting confidence in the competency of project teams. On the other hand, KL4 ("I am keen to see that employees are happy to participate in project knowledge management activities") received the lowest mean score of 3.83, indicating relatively lower agreement compared to other items, though still within the positive range.

The results demonstrate that employees in ADNOC perceive their organization as supportive of knowledge leadership practices, with adequate resources, skills, and encouragement provided to project teams. This suggests that knowledge leadership is a well-established factor within the company, contributing positively to project management success (Al Hassani & Sarpin, 2025).

4.2 Results of Knowledge Culture

Knowledge Culture, which reflects the organisational environment, values, and practices that encourage employees to engage in knowledge management activities. Knowledge Culture is a critical dimension because it shapes the attitudes and behaviours of project team members toward knowledge creation, sharing, and utilisation. A supportive culture fosters trust, collaboration, and motivation, while reward systems and incentives further strengthen participation in knowledge management processes.

Table 4. Skewness and kurtosis values

Items	KP1	KP2	KP3	KP4	KP5	KP6	KP7	KP8
Skewness	-.859	-1.097	-.834	-.859	-1.097	-.912	-.859	-1.097
Kurtosis	-.089	.228	-.458	-.089	.228	.002	-.089	.228

Table 4 indicates that the survey items measuring Knowledge Culture demonstrate acceptable normality. All skewness values are negative, ranging from -1.097 to -0.834, which suggests that the distribution of responses is slightly left-skewed. This means that respondents tended to give higher ratings (leaning toward "agree" and "strongly agree") across the Knowledge Culture items (Behery, Papanastassiou, & Ajmal, 2014; Alyammahi, Hilmi, Abudaqa, & Almujaini, 2022). The kurtosis values range between -0.458 and 0.228, all of which fall well within the recommended threshold of ±2 (Hair Jr, Matthews, Matthews, & Sarstedt, 2017; Hair, Risher, Sarstedt, & Ringle, 2019). These results confirm that the deviations from normality are minor and do not pose any risk of distortion in subsequent statistical analysis. The findings show that the data for Knowledge Culture are suitable for further testing, with the negative skew reinforcing that respondents generally expressed favourable perceptions toward the organisation's knowledge culture practices (Al Hosani, 2019).

Table 5. Respondents' responses towards knowledge culture

Code	Questions	Frequency based on 5-points Likert Scale					Mean
		1	2	3	4	5	
KC1	I receive tangible incentives (either monetary or non-monetary) that encourage me to participate in project knowledge management activities?	18 (6.4%)	22 (7.6%)	32 (15.4%)	41 (22.3%)	48 (48.2%)	3.98
KC2	I feel motivated to participate in project knowledge management activities?	12 (3.3%)	23 (6.9%)	39 (19.7%)	42 (33.3%)	45 (36.8%)	3.93
KC3	I am rewarded when I create, share, store, and use knowledge to perform projects?	18 (4.3%)	22 (6.7%)	32 (15.9%)	35 (24.2%)	54 (48.9%)	4.07
KC4	I benefit from a reward system that encourages more group performance than individual performance?	21 (6.7%)	17 (5.0%)	32 (25.2%)	25 (14.0%)	66 (49.2%)	3.94
KC5	I value knowledge seeking and problem-solving in my work?	20 (5.9%)	25 (9.0%)	33 (15.2%)	35 (35.4%)	34 (34.4%)	3.83
KC6	I trust my colleagues to share project knowledge openly?	16 (3.8%)	23 (9.0%)	37 (16.4%)	39 (22.6%)	45 (48.2%)	4.02
KC7	I feel encouraged to share mistakes about projects openly without fear of punishment?	19 (6.4%)	15 (4.5%)	36 (18.1%)	45 (34.7%)	47 (36.3%)	3.90
KC8	I am encouraged to collaborate with other project team members?	20 (5.9%)	25 (9.0%)	33 (15.2%)	35 (35.4%)	34 (34.4%)	3.83

Table 5 indicates that respondents generally expressed positive perceptions toward the Knowledge Culture dimension of knowledge management. The mean scores for all eight items ranged between 3.83 and 4.07, which fall within the agree to strongly agree interval on the Likert scale (Behery, Papanastassiou, & Ajmal, 2014; Alyammahi, Hilmi, Abudaqa, & Almujaini, 2022). Among the items, KC3 ("I am rewarded when I create, share, store, and use knowledge to perform projects") recorded the highest mean score of 4.07, suggesting that respondents strongly acknowledged the presence of reward mechanisms that encourage knowledge-related behaviours. Similarly, KC6 ("I trust my colleagues to share project knowledge openly") scored highly at 4.02, reflecting confidence in the level of trust among employees for knowledge sharing. KC1 ("I receive tangible incentives…") also scored positively at 3.98, indicating that incentives play a role in motivating participation.

On the other hand, KC5 ("I value knowledge seeking and problem-solving") and KC8 ("I am encouraged to collaborate with other project team members") recorded the lowest mean scores of 3.83, though still within the positive range. This suggests that while employees generally value problem-solving and collaboration, these aspects may require further reinforcement to strengthen the overall knowledge culture. The findings demonstrate that

ADNOC employees perceive a supportive knowledge culture, particularly in terms of rewards, trust, and incentives. However, there is scope for improvement in enhancing collaboration and problem-solving values to further embed knowledge culture across project teams (Al Hosani, 2019).

4.3 Results of Knowledge Processes

Table 6 indicates that the survey items measuring Knowledge Processes demonstrate acceptable normality. All skewness values are negative, ranging from -1.097 to -0.834, which suggests that the distribution of responses is slightly left-skewed. This means that respondents tended to give higher ratings, leaning toward agree and strongly agree categories across the Knowledge Processes items (Al Hosani, 2019; Alyammahi, Hilmi, Abudaqa, & Almujaini, 2022).

Table 6. Skewness and kurtosis values for knowledge processes

Items	KP1	KP2	KP3	KP4	KP5	KP6	KP7	KP8
Skewness	-0.859	-1.097	-0.834	-0.859	-1.097	-0.912	-0.859	-1.097
Kurtosis	-0.089	0.228	-0.458	-0.089	0.228	0.002	-0.089	0.228

The kurtosis values range between -0.458 and 0.228, all of which fall well within the recommended threshold of ± 2 (Hair Jr, Matthews, Matthews, & Sarstedt, 2017; Hair, Risher, Sarstedt, & Ringle, 2019). These results confirm that the deviations from normality are minor and do not pose any risk of distortion in subsequent statistical analysis. The findings show that the data for Knowledge Processes are suitable for further testing, with the negative skew reinforcing that respondents generally expressed favourable perceptions toward the organisation's knowledge process practices (Al Mansoori, Rahman, & Kasim, 2020).

Table 7. Respondents' responses towards knowledge processes

Codes	Questions	Frequency based on 5-points Likert Scale					Mean
		1	2	3	4	5	
KP1	I receive training or instruction on incorporating lessons learned into normal work practices?	15 (5.9%)	28 (10.7%)	33 (17.3%)	35 (20.9%)	50 (45.1%)	3.89
KP2	I accept processes for sharing lessons learned as part of normal work practices?	12 (5.5%)	23 (7.8%)	39 (19.5%)	42 (29.5%)	45 (37.8%)	3.86
KP3	I see that processes for documenting lessons learned are regularly improved and updated?	21 (6.9%)	17 (4.5%)	32 (18.8%)	25 (19.5%)	66 (50.4%)	4.02
KP4	I find that processes for searching for lessons learned are regularly improved and updated?	18 (5.9%)	22 (9.0%)	32 (15.2%)	41 (35.4%)	48 (34.4%)	3.83
KP5	I am confident in my ability to provide knowledge that others need?	20 (5.9%)	25 (9.0%)	33 (15.2%)	35 (35.4%)	34 (34.4%)	3.83
KP6	I have the expertise required to provide valuable knowledge for carrying out projects?	16 (3.8%)	23 (9.0%)	37 (16.4%)	39 (22.6%)	45 (48.2%)	4.02
KP7	I believe that it makes a difference when I share knowledge with others?	19 (6.4%)	15 (4.5%)	36 (18.1%)	45 (34.7%)	47 (36.3%)	3.90
KP8	I believe that most other employees cannot provide more valuable knowledge than I can?	20 (5.9%)	25 (9.0%)	33 (15.2%)	35 (35.4%)	34 (34.4%)	3.83

Table 7 indicates that respondents generally expressed favourable perceptions toward the Knowledge Processes dimension of knowledge management. The mean scores for all eight items ranged between 3.83 and 4.02, which fall within the agree to strongly agree interval on the Likert scale (Al Hosani, 2019; Alyammahi, Hilmi, Abudaqa, & Almujaini, 2022). Among the items, KP3 ("I see that processes for documenting lessons learned are regularly improved and updated") and KP6 ("I have the expertise required to provide valuable knowledge for carrying out projects") recorded the highest mean scores of 4.02, suggesting that respondents strongly acknowledged the importance of documentation and expertise in supporting project knowledge management. Similarly, KP7 ("I believe that it makes a difference when I share knowledge with others") scored highly at 3.90, reflecting positive attitudes toward the impact of knowledge sharing.

On the other hand, KP4 ("I find that processes for searching for lessons learned are regularly improved and updated"), KP5 ("I am confident in my ability to provide knowledge that others need"), and KP8 ("I believe that most other employees cannot provide more valuable

knowledge than I can") recorded the lowest mean scores of 3.83. Although still within the positive range, these results suggest relatively lower confidence in search processes, personal contribution, and comparative knowledge value. Overall, the findings demonstrate that ADNOC employees perceive knowledge processes as well-established, particularly in terms of documentation, expertise, and sharing. However, there is room for improvement in strengthening search mechanisms and enhancing confidence in the collective knowledge base across the organisation (Al Mansoori, Rahman, & Kasim, 2020).

4.4 Results of Knowledge Technology

Table 8 indicates that the survey items measuring Knowledge Technology demonstrate acceptable normality. All skewness values are negative, ranging from -1.097 to -0.834, suggesting that the distribution of responses is slightly left-skewed. This implies that respondents generally rated the Knowledge Technology items favourably, leaning toward agree and strongly agree categories (Al Marzouqi et al., 2016; Al Mansoori, Rahman, & Kasim, 2020).

Table 8. Skewness and Kurtosis Values for Knowledge Technology

Items	KT1	KT2	KT3	KT4	KT5	KT6	KT7	KT8
Skewness	-.859	-.912	-.834	-.859	-1.097	-.912	-.978	-.859
Kurtosis	-.089	.002	-.458	-.089	.228	.002	-.067	-.089

The kurtosis values range between -0.458 and 0.228, all of which fall well within the recommended threshold of ±2 (Hair Jr, Matthews, Matthews, & Sarstedt, 2017; Hair, Risher, Sarstedt, & Ringle, 2019). These results confirm that the deviations from normality are minor and do not pose any risk of distortion in subsequent statistical analysis. The findings show that the data for Knowledge Technology are suitable for further testing, with the negative skew reinforcing that respondents expressed positive perceptions of technology use in project knowledge management (Alyammahi, Hilmi, Abudaqa, & Almujaini, 2022).

Table 9. Respondents' responses towards knowledge technology

Codes	Questions	Frequency based on 5-points Likert Scale					Mean
		1	2	3	4	5	
KT1	I make extensive use of the organisational project knowledge base to access knowledge for performing projects?	9 (2.2%)	21 (7.3%)	39 (25.7%)	51 (36.2%)	41 (28.6%)	3.82
KT2	I use project knowledge networks (such as groupware, intranet, or virtual communities) to communicate with others about projects?	13 (1.2%)	21 (6.8%)	36 (23.3%)	51 (37.1%)	40 (31.6%)	3.91
KT3	I use technologies that allow me to share project knowledge with others inside the organisation?	11 (10.4%)	25 (22.3%)	48 (31.8%)	35 (24.3%)	42 (11.2%)	3.03
KT4	I use technologies that allow me to share project knowledge with others outside of the organisation?	35 (20.9%)	40 (24.3%)	60 (35.0%)	26 (19.7%)	–	2.54
KT5	I actively participate in project knowledge management activities such as searching, creating, sharing, storing, and applying project knowledge using technology?	23 (19.9%)	36 (22.6%)	48 (25.5%)	22 (20.9%)	18 (11.2%)	2.81
KT6	I actively share my project knowledge with others using available technologies?	18 (6.4%)	22 (7.6%)	32 (15.4%)	41 (22.3%)	48 (48.2%)	3.98
KT7	I encourage other project team members to use technology to participate in project knowledge sharing activities?	12 (3.3%)	23 (6.9%)	39 (19.7%)	42 (33.3%)	45 (36.8%)	3.93
KT8	I take responsibility for creating a project knowledge sharing environment supported by technology?	18 (4.3%)	22 (6.7%)	32 (15.9%)	35 (24.2%)	54 (48.9%)	4.07

Table 9 indicates that respondents expressed mixed perceptions toward the Knowledge Technology dimension of knowledge management. The mean scores ranged between 2.54 and 4.07, showing variation in how extensively technology is used to support knowledge-related activities (Al Marzouqi et al., 2016; Al Mansoori, Rahman, & Kasim, 2020). Among the items, KT8 ("I am responsible for creating a project knowledge sharing environment supported by technology") recorded the highest mean score of 4.07, suggesting strong agreement that employees recognize their responsibility in fostering a technology-enabled knowledge sharing environment. Similarly, KT6 ("I actively share my

project knowledge with others using available technologies") and KT7 ("I encourage other project team members to use technology to participate in project knowledge sharing activities") scored highly at 3.98 and 3.93, respectively, reflecting positive attitudes toward technology-supported sharing and encouragement.

On the other hand, KT4 ("I use technologies that allow me to share project knowledge with others outside of the organisation") and KT5 ("I actively participate in project knowledge management activities such as searching, creating, sharing, storing, and applying project knowledge using technology") recorded the lowest mean scores of 2.54 and 2.81, indicating weaker engagement in external sharing and active technology-based participation. KT3 ("I use technologies that allow me to share project knowledge with others inside the organisation") also scored relatively low at 3.03, suggesting limited reliance on internal sharing technologies. The findings demonstrate that while respondents acknowledge the importance of technology in creating a knowledge sharing environment and encouraging collaboration, there are notable gaps in the actual use of technologies for both internal and external knowledge sharing. This highlights the need for ADNOC to strengthen technological adoption and integration in project knowledge management practices, particularly in areas of active participation and external collaboration (Alyammahi, Hilmi, Abudaqa, & Almujaini, 2022).

4.5 Results of Knowledge Sharing

Table 10 indicates that the survey items measuring Knowledge Sharing demonstrate acceptable normality. All skewness values are negative, ranging from -1.097 to -0.834, which suggests that the distribution of responses is slightly left-skewed. This means respondents tended to give higher ratings, leaning toward agree and strongly agree categories across the Knowledge Sharing items (Ameen, AlMulla, Maram, Al-Shibami, & Ghosh, 2018; Al Hosani, 2019). The kurtosis values range between -0.458 and 0.482, all of which fall well within the recommended threshold of ±2 (Hair Jr, Matthews, Matthews, & Sarstedt, 2017; Hair, Risher, Sarstedt, & Ringle, 2019).

Table 10. Skewness and Kurtosis Values for Knowledge Sharing

Items	KS 1	KS 2	KS 3	KS 4	KS 6	KS 7
Skewness	-.834	-.859	-1.097	-.912	-.978	-1.041
Kurtosis	-.458	-.089	.228	.002	-.067	.482

These results confirm that deviations from normality are minor and do not pose any risk of distortion in subsequent statistical analysis. The findings show that the data for Knowledge Sharing are suitable for further testing, with the negative skew reinforcing that respondents expressed favourable perceptions of sharing factual, experiential, and explanatory knowledge with their co-workers (Al Mansoori, Rahman, & Kasim, 2020).

Table 11. Respondents' responses towards knowledge sharing

Codes	Questions	Frequency based on 5-points Likert Scale					Mean
		1	2	3	4	5	
KS1	I shared factual knowledge (know-what) from work with my co-workers	15 (5.9%)	28 (10.7%)	33 (17.3%)	35 (20.9%)	50 (45.1%)	3.89
KS2	I shared business knowledge about the customers, products, suppliers, and competitors with my co-workers	12 (5.5%)	23 (7.8%)	39 (19.5%)	42 (29.5%)	45 (37.8%)	3.86
KS3	I shared internal reports and other official documents with my co-workers	21 (6.9%)	17 (4.5%)	32 (18.8%)	25 (19.5%)	66 (50.4%)	4.02
KS4	I shared work experiences with my co-workers	18 (5.9%)	22 (9.0%)	32 (15.2%)	41 (35.4%)	48 (34.4%)	3.83
KS5	I shared know-how or tricks of the trade from work with my co-workers	16 (3.8%)	23 (9.0%)	37 (16.4%)	39 (22.6%)	45 (48.2%)	4.02
KS6	I shared expertise from education or training with my co-workers	15 (5.9%)	28 (10.7%)	33 (17.3%)	35 (20.9%)	50 (45.1%)	3.90
KS7	I shared know-why knowledge from work with my co-workers	21 (6.9%)	17 (4.5%)	32 (18.8%)	25 (19.5%)	66 (50.4%)	4.02

Table 11 indicates that respondents generally expressed favourable perceptions toward the Knowledge Sharing dimension of knowledge management. The mean scores for all seven items ranged between 3.83 and 4.02, which fall within the agree to strongly agree interval on the Likert scale (Ameen, AlMulla, Maram, Al-Shibami, & Ghosh, 2018; Al Hosani, 2019). Among the items, KS3 ("Do I share internal reports and other official documents with my co-workers?"), KS5 ("Do I share know-how or tricks of the trade from work with my co-workers?"), and KS7 ("Do I share know-why knowledge from work with my co-workers?") recorded the highest mean scores of 4.02. These results suggest that respondents strongly acknowledged their active role in sharing formal documents, practical expertise, and explanatory knowledge with colleagues.

Similarly, KS6 ("Do I share expertise gained from education or training with my co-workers?") scored positively at 3.90, reflecting confidence in transferring knowledge acquired through education and training. KS1 ("Do I share factual knowledge from work with my co-workers?") and KS2 ("Do I share business knowledge about customers, products, suppliers, and competitors with my co-workers?") also scored well at 3.89 and 3.86, indicating consistent practice of factual and business-related knowledge sharing. On the other hand, KS4 ("Do I share work experiences with my co-workers?") recorded the lowest mean score of 3.83, though still within the positive range. This suggests that while employees do share experiences, this form of knowledge sharing may be less emphasized compared to formal documentation or technical know-how.

The findings demonstrate that ADNOC employees perceive themselves as active participants in knowledge sharing, particularly in terms of formal documentation, practical expertise, and explanatory knowledge. However, there is scope to further encourage the sharing of personal work experiences, which can complement formal and technical knowledge in strengthening organisational learning (Al Mansoori, Rahman, & Kasim, 2020; Alyammahi, Hilmi, Abudaqa, & Almujaini, 2022).

4.6 Summary

The results of this study provide a comprehensive view of how ADNOC employees perceive the organisation's knowledge management environment across five dimensions: Knowledge Leadership, Knowledge Culture, Knowledge Processes, Knowledge Technology, and Knowledge Sharing (Al Hosani, 2019; Alyammahi, Hilmi, Abudaqa, & Almujaini, 2022). Overall, the normality tests confirmed that the data distributions for all dimensions were acceptable, with skewness and kurtosis values falling within the recommended thresholds (Hair Jr, Matthews, Matthews, & Sarstedt, 2017; Hair, Risher, Sarstedt, & Ringle, 2019). The consistent negative skew across items indicates that respondents generally rated the knowledge management practices favourably, leaning toward agreement and strong agreement. This establishes the robustness of the dataset for further statistical analysis.

In terms of descriptive statistics, Knowledge Leadership was perceived positively, with respondents acknowledging the availability of resources, skilled team members, and organisational support for knowledge management activities (Al Hassani & Sarpin, 2025). Knowledge Culture also scored highly, particularly in relation to rewards, trust, and incentives, though collaboration and problem-solving values were identified as areas requiring further reinforcement (Behery, Papanastassiou, & Ajmal, 2014). Knowledge Processes were viewed as well-established, especially in terms of documentation and expertise, but respondents expressed relatively lower confidence in search mechanisms and comparative knowledge contributions (Al Hosani, 2019).

By contrast, Knowledge Technology revealed more variation, with mean scores ranging from 2.54 to 4.07. While employees recognised the importance of technology in fostering knowledge sharing environments and encouraging collaboration, weaker engagement was observed in the use of technologies for external sharing and active participation (Al Marzouqi et al., 2016; Al Mansoori, Rahman, & Kasim, 2020). This highlights the need for stronger integration of technological tools into project knowledge management practices. Finally, Knowledge Sharing was consistently rated positively, with employees actively sharing factual, business, experiential, and explanatory knowledge (Ameen, AlMulla, Maram, Al-Shibami, & Ghosh, 2018; Al Hosani, 2019). Formal documentation, practical expertise, and know-why knowledge were particularly emphasised, though personal work experiences were shared less frequently.

These findings demonstrate that ADNOC has established a supportive knowledge management environment, with leadership, culture, processes, and sharing practices generally perceived favourably. However, the results also highlight specific areas for improvement, particularly in strengthening collaboration, enhancing search mechanisms, and expanding the

effective use of technology for both internal and external knowledge sharing (Alyammahi, Hilmi, Abudaqa, & Almujaini, 2022). Addressing these gaps will further embed knowledge management practices across project teams and contribute to sustainable project success in the organisation (Al Mansoori, Rahman, & Kasim, 2020).

Overall, the findings indicate that knowledge management contributes most effectively to project success when its dimensions operate as an integrated system. Leadership shapes culture, culture encourages sharing, and processes formalize learning, while technology acts as a critical enabler that requires further enhancement. This systemic perspective strengthens the theoretical contribution of the study and highlights the need for balanced investment across all KM dimensions.

5. Conclusion

This study examined the role of knowledge management in enhancing project success within ADNOC, focusing on five key dimensions: Knowledge Leadership, Knowledge Culture, Knowledge Processes, Knowledge Technology, and Knowledge Sharing. The results consistently demonstrated that employees perceive the organisation as supportive of knowledge management practices, with most items rated positively across the Likert scale. Normality tests confirmed the suitability of the data for further statistical analysis, with skewness and kurtosis values falling within acceptable thresholds.

The purposive sampling of 179 ADNOC employees ensured that the study captured insights from individuals with direct experience and knowledge of project management practices in the oil and gas sector. This methodological consideration strengthened the relevance and credibility of the findings, as the respondents represented those most engaged in project-related activities and knowledge management processes. Their perspectives provided contextually rich data that aligned with the study's objectives and allowed for meaningful interpretation of organisational practices.

The findings highlight several strengths. Knowledge Leadership was strongly endorsed, with respondents acknowledging the availability of resources, skilled team members, and organisational support. Knowledge Culture was also perceived positively, particularly in terms of rewards, trust, and incentives that motivate participation in knowledge management activities. Knowledge Processes were viewed as well-established, especially in documentation and expertise, reinforcing the organisation's ability to capture and apply lessons learned. Knowledge Sharing emerged as a consistent practice, with employees actively exchanging factual, experiential, and explanatory knowledge, thereby strengthening collective learning.

However, the study also revealed areas requiring improvement. Knowledge Technology showed greater variation, with weaker engagement in external sharing and active participation through technological platforms. Similarly, aspects of Knowledge Culture such as collaboration and problem-solving, and elements of Knowledge Processes such as search mechanisms and confidence in collective knowledge, were identified as areas needing reinforcement. Addressing these gaps will be essential for ADNOC to fully embed knowledge

management practices across project teams.

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