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ANTECEDENTS AND OUTCOMES OF CULTURAL INTELLIGENCE AMONG EXPATRIATE WORKERS IN INTERNATIONAL OIL AND GAS PROJECTS: A SYSTEMATIC LITERATURE REVIEW AND CONCEPTUAL FRAMEWORK FOR FUTURE RESEARCH

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ABSTRACT

The increasing globalization of the oil and gas industry has led to a growing number of expatriate workers being deployed to culturally diverse project environments. International oil and gas projects frequently involve employees, contractors, government agencies, host communities, and other stakeholders from different cultural backgrounds, making cultural intelligence (CQ) an important factor in expatriate effectiveness. Although cultural intelligence has received considerable attention in the international management literature, knowledge regarding its antecedents and outcomes remains scattered across different research fields. This study systematically reviews the literature on cultural intelligence among expatriate workers in international oil and gas projects and develops a conceptual framework to guide future research. Using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) approach, the review synthesized findings from 96 peer-reviewed studies published between 2003 and 2025. The findings indicate that cultural intelligence is influenced by individual-level factors, including international experience, personality traits, language proficiency, and learning orientation; organizational-level factors, including cross-cultural training, organizational support, mentoring and coaching, and leadership development; and project-level factors, including team diversity, project characteristics, stakeholder diversity, and international project exposure. The review further shows that cultural intelligence contributes to important outcomes at multiple levels. At the individual level, CQ enhances expatriate adjustment, employee engagement, assignment success, and retention intentions. At the project level, it improves project performance, stakeholder management

effectiveness, safety performance, team collaboration, and knowledge transfer. At the organizational level, CQ supports leadership effectiveness, organizational learning, competitive advantage, and project success. Based on these findings, the study proposes an integrated conceptual framework that positions metacognitive, cognitive, motivational, and behavioral cultural intelligence as mechanisms through which individual, organizational, and project-level factors influence performance outcomes. The study concludes that cultural intelligence plays a central role in helping expatriate workers perform effectively in international oil and gas projects and identifies several priorities for future research.

KEYWORDS: *Cultural intelligence, expatriate workers, international oil and gas projects, project management, expatriate adjustment, project performance, organizational learning, systematic literature review.*

1. INTRODUCTION

The international oil and gas industry is among the most globalized and culturally complex sectors in the contemporary economy. Exploration, production, transportation, refining, and distribution activities increasingly involve multinational corporations operating across geographically dispersed regions characterized by diverse cultural, institutional, and regulatory environments (Adekoya et al., 2023). Large-scale oil and gas projects frequently require organizations to deploy highly skilled expatriate workers to foreign locations where they collaborate with local employees, contractors, government agencies, host communities, and international stakeholders. Consequently, the effectiveness of expatriate workers has become a critical determinant of project success, operational efficiency, and organizational competitiveness (Caligiuri et al., 2020).

The reliance on expatriate personnel is particularly pronounced in the oil and gas industry due to the specialized technical expertise required to manage complex engineering, construction, drilling, and production operations. Expatriates often occupy strategic positions such as project directors, project managers, drilling supervisors, petroleum engineers, health and safety specialists, and operations managers (Al Mazrouei & Pech, 2015). While these professionals typically possess substantial technical competencies, successful project execution depends not only on technical expertise but also on their ability to operate effectively within culturally diverse environments. Failure to adapt to host-country cultures can result in communication breakdowns, workplace conflicts, stakeholder resistance, reduced productivity, and, ultimately, project failure (Michailova & Ott, 2018; Ott & Michailova, 2017).

The challenges associated with expatriate assignments have become increasingly significant in international oil and gas projects. Many projects are undertaken in regions characterized by cultural diversity, political complexity, and extensive stakeholder engagement requirements. For example, oil and gas developments in Africa, the Middle East, Central Asia, and Latin America often involve interactions among employees and stakeholders from multiple national, ethnic, linguistic, and religious backgrounds (Mahmud & Prowse, 2023). Expatriates operating in such contexts must navigate unfamiliar cultural norms, communication styles, leadership expectations, and social practices while simultaneously meeting demanding project objectives. Consequently, scholars and practitioners have increasingly emphasized the importance of intercultural competencies in facilitating expatriate effectiveness and project success (Ang et al., 2019; Rockstuhl et al., 2011).

Among the various competencies examined in expatriate management research, cultural intelligence (CQ) has emerged as one of the most influential predictors of successful international performance. Cultural intelligence refers to an individual's capability to function effectively in culturally diverse situations (Earley & Ang, 2003; Earley & Mosakowski, 2003). Unlike traditional

intelligence constructs that focus primarily on cognitive abilities, CQ specifically addresses an individual's capacity to understand, adapt to, and interact effectively with people from different cultural backgrounds. The construct comprises four dimensions: metacognitive, cognitive, motivational, and behavioral cultural intelligence, each contributing uniquely to intercultural effectiveness (Ang et al., 2007; Ang, 2021).

A growing body of empirical research has demonstrated that cultural intelligence positively influences numerous expatriate outcomes, including cross-cultural adjustment, job performance, leadership effectiveness, team collaboration, and assignment success (Ang et al., 2007; Ott & Michailova, 2016; Plake, 2016). Individuals with high levels of CQ are generally better equipped to interpret cultural cues, adapt their behavior, build productive relationships, and navigate culturally complex situations (Ang et al., 2019; Ott & Michailova, 2016). Within project-based environments such as oil and gas operations, these capabilities become particularly important because project outcomes often depend upon effective coordination among culturally diverse stakeholders (Chen et al., 2022).

Despite the growing recognition of CQ's importance, the literature remains fragmented regarding the factors that contribute to the development of cultural intelligence and the specific outcomes associated with CQ in international project environments. Previous studies have examined various antecedents, including cross-cultural training, international experience, personality traits, language proficiency, and organizational support (Ang & Van Dyne, 2015; Michailova & Ott, 2018; Ott & Michailova, 2017). Similarly, researchers have linked CQ to outcomes such as expatriate adjustment, job performance, leadership effectiveness, and knowledge transfer (Lee & Sukoco, 2010; Ott & Michailova, 2016; Setti et al., 2020). However, these studies are dispersed across different disciplines, including international human resource management, organizational behavior, psychology, leadership studies, and project management, making it difficult to develop a coherent understanding of the phenomenon (Michailova & Holden, 2018; Snyder, 2019).

The challenge is even more pronounced within the oil and gas sector. Existing research tends to focus broadly on expatriates across industries rather than specifically examining expatriate workers engaged in international oil and gas projects. Yet oil and gas projects differ significantly from many other organizational settings due to their scale, complexity, safety requirements, technical sophistication, and extensive stakeholder engagement processes (Aga et al., 2021). These unique characteristics suggest that the antecedents and outcomes of cultural intelligence may manifest differently within oil and gas project environments compared to traditional corporate settings (Ang et al., 2019; Chen et al., 2022).

Furthermore, the increasing emphasis on project success in international project management has created a need to understand how cultural intelligence contributes to project-level outcomes. Traditional expatriate management studies have often focused on individual outcomes such as adjustment and job satisfaction. However, contemporary project management literature increasingly recognizes that individual competencies influence broader outcomes including project performance, stakeholder satisfaction, knowledge transfer, safety compliance, and organizational learning (Chen et al., 2022; Müller et al., 2023). Consequently, there is a need to examine cultural intelligence not only as an individual capability but also as a strategic resource that contributes to project success (Ang et al., 2019; Ott & Michailova, 2016).

Given these developments, a comprehensive synthesis of the literature is necessary to consolidate existing knowledge, identify emerging themes, and highlight areas requiring further investigation. Systematic literature reviews provide a rigorous approach for synthesizing evidence, identifying research trends, and developing theoretical frameworks that guide future inquiry (Ott & Michailova, 2016; Snyder, 2019). By systematically reviewing the literature on cultural intelligence among

expatriate workers in international oil and gas projects, this study seeks to advance understanding of both the antecedents and outcomes of CQ within project-based environments (Ang, 2021; Michailova & Ott, 2018).

Specifically, this review addresses four research questions:

1. What antecedents contribute to the development of cultural intelligence among expatriate workers in international oil and gas projects?
2. What outcomes are associated with cultural intelligence in international oil and gas project environments?
3. How can the relationships among antecedents, cultural intelligence, and outcomes be conceptualized within a unified framework?
4. What research gaps and future directions emerge from the existing literature?

The study contributes to the literature in several ways. First, it integrates fragmented findings from multiple disciplines to provide a comprehensive understanding of cultural intelligence in international oil and gas projects. Second, it identifies the most significant antecedents and outcomes of CQ relevant to expatriate workers. Third, it develops a conceptual framework linking organizational, individual, and project-level factors to cultural intelligence and project outcomes. Finally, it proposes a future research agenda that can guide scholars and practitioners in advancing knowledge and improving expatriate effectiveness within international project environments.

2. Theoretical Foundation

2.1 Cultural Intelligence Theory

The present review is primarily grounded in Cultural Intelligence Theory developed by Earley and Ang, which conceptualizes cultural intelligence as a distinct capability required for effective functioning across cultures in an increasingly globalized world (Earley & Ang, 2003; Earley & Mosakowski, 2003; Earley et al., 2006). The theory emerged from the recognition that traditional forms of intelligence, particularly cognitive intelligence and emotional intelligence, were insufficient to explain why some individuals adapt more successfully than others in culturally diverse environments (Earley & Ang, 2003; Ang, Rockstuhl, & Tan, 2015). As organizations expanded their operations across national boundaries and employees increasingly engaged in multicultural interactions, scholars argued for a specialized form of intelligence that could explain intercultural effectiveness and adaptation (Ang, Ng, & Rockstuhl, 2019; Ang, Rockstuhl, & Tan, 2015).

Cultural intelligence is defined as an individual's capability to function and manage effectively in situations characterized by cultural diversity (Earley & Ang, 2003; Ang & Van Dyne, 2015; Ang, Ng, & Rockstuhl, 2019). Unlike relatively stable personality traits, cultural intelligence is considered a developmental capability that can be enhanced through learning, experience, training, and intercultural exposure. This characteristic makes CQ particularly relevant for organizations seeking to improve expatriate effectiveness and performance through targeted developmental interventions (Ang & Van Dyne, 2015; Earley et al., 2006; Ang, Rockstuhl, & Tan, 2015).

The theoretical foundations of cultural intelligence draw upon multiple disciplines, including social intelligence, emotional intelligence, intercultural communication, organizational behavior, and cognitive psychology. By integrating insights from these fields, Cultural Intelligence Theory provides a comprehensive framework for understanding how individuals navigate culturally diverse environments (Ang & Van Dyne, 2015; Liao & Thomas, 2020a, 2020b). The theory proposes that effective intercultural functioning depends on four interrelated dimensions: metacognitive, cognitive, motivational, and behavioral cultural intelligence. Together, these dimensions enable

individuals to understand, interpret, and respond appropriately to cultural differences, thereby facilitating effective interaction and performance in multicultural settings (Ang et al., 2007; Ang, Ng, & Rockstuhl, 2019; Liao & Thomas, 2020a).

2.2 Metacognitive Cultural Intelligence

Metacognitive CQ refers to higher-order cognitive processes used to acquire and understand cultural knowledge (Ang et al., 2007; Van Dyne et al., 2012). It encompasses an individual's awareness, monitoring, and regulation of cultural assumptions during intercultural interactions (Ang & Van Dyne, 2008; Huang, 2023). Individuals possessing high metacognitive CQ consciously reflect upon cultural experiences, question existing assumptions, and adjust their thinking in response to new information, thereby updating mental models and avoiding superficial or inaccurate interpretations of cultural cues (Van Dyne et al., 2012; Rockstuhl & Van Dyne, 2018). Such individuals actively check whether their interpretations align with others' intentions and revise their strategies accordingly, which supports more accurate intercultural judgment and decision-making (Ang et al., 2007; Van Dyne et al., 2012).

Within international oil and gas projects, metacognitive CQ is particularly important because expatriates frequently encounter unfamiliar situations requiring cultural interpretation and adaptation, similar to expatriates in other high-stakes international assignments (Lorenz et al., 2017; Han et al., 2022). Project managers working across multiple stakeholder groups must continuously evaluate cultural expectations, anticipate how different cultural values shape preferences and behaviors, and adjust their strategies accordingly (Van der Horst & Albertyn, 2018; Semenov & Randrianasolo, 2024). Metacognitive CQ helps them pause, reflect, and consider alternative cultural explanations before acting, which enhances coordination, knowledge sharing, and innovativeness in multicultural project teams (Lorenz et al., 2017; Vlajčić et al., 2018; Semenov & Randrianasolo, 2024). Consequently, metacognitive CQ facilitates effective decision-making, cross-cultural adjustment, and stakeholder engagement in culturally complex environments, supporting higher expatriate effectiveness and project performance (Ang et al., 2007; Han et al., 2022; Lei et al., 2025).

2.3 Cognitive Cultural Intelligence

Cognitive cultural intelligence (CQ) reflects an individual's knowledge of how cultures work, including norms, values, legal and economic systems, social institutions, religion, and language conventions across societies (Ang et al., 2007; Han et al., 2022). This knowledge gives expatriates "mental maps of culture" that help them anticipate similarities and differences between cultures and understand culturally appropriate behavior in work settings (Setti et al., 2020). Cognitive CQ thus underpins cultural judgment, decision making, and intercultural negotiation by enabling expatriates to interpret rules, roles, and expectations in foreign environments (Ang et al., 2007; Vlajčić et al., 2018).

Meta-analytic work defines cognitive CQ as knowledge about legal and economic systems, language rules, and religious and social conventions in other cultures, and shows that it is one of four CQ dimensions (with metacognitive, motivational, behavioral) that contribute positively to expatriate adjustment (Han et al., 2022). Expatriates high in cognitive CQ are more likely to understand prevailing rules and conventions and appropriate verbal and non-verbal behaviors, which facilitates adaptation in culturally diverse settings (Han et al., 2022; Yow et al., 2022). In energy-sector expatriates, cognitive CQ is part of the broader CQ profile that is directly and indirectly associated with higher assignment-specific performance via cross-cultural work adjustment (Setti et al., 2020). Cognitive CQ also supports knowledge transfer: expatriate managers' cultural knowledge acts as a "coding/decoding" filter that helps translate technical and managerial practices across cultural boundaries in multinational firms (Vlajčić et al., 2018).

In international oil and gas projects, which resemble international construction and energy projects in complexity, institutional diversity, and stakeholder variety—cognitive CQ is particularly relevant for understanding host-country regulatory regimes, local community norms, and organizational and national cultures. Research on international construction expatriates shows that CQ enables expatriates to navigate culturally distant institutional environments and enhances project-related performance (Chen et al., 2023; Abdalla et al., 2024). Studies of cultural intelligence and institutional distance in international construction further indicate that culture-related capabilities improve project performance and help contractors adapt to heterogeneous formal and informal institutional environments (Lin et al., 2021). Qualitative work with senior leaders in oil and gas organizations highlights cultural intelligence and global mindset (including a cognitive component) as central to understanding host environments and reducing expatriate failure in international assignments (Martins et al., 2023).

Taken together, this literature suggests that in international oil and gas projects, cognitive CQ helps expatriates and project managers interpret host legal and regulatory frameworks, community expectations (e.g., around land, environment, or local employment), organizational cultures (operator, contractors, JV partners), and stakeholder interests. This culturally grounded systems knowledge is essential for navigating complex, multi-actor project environments and underpins effective adaptation, knowledge transfer, and project performance in the sector (Setti et al., 2020; Vlajčić et al., 2018; Lin et al., 2021; Martins et al., 2023).

2.4 Motivational Cultural Intelligence

Motivational CQ refers to the capability to direct attention and energy toward intercultural situations (Ang & Van Dyne, 2015). It reflects an individual's confidence, interest, and intrinsic motivation to engage with people from different cultural backgrounds (Ang et al., 2007; Peng, Van Dyne, & Oh, 2015). Individuals high in motivational CQ tend to enjoy intercultural interactions, proactively seek contact with culturally diverse others, and view cross-cultural challenges as opportunities for learning rather than threats (Han, Sears, Darr, & Wang, 2022; Huff, Song, & Gresch, 2013). This motivational drive includes both intrinsic enjoyment of intercultural experiences and self-efficacy, confidence in one’s ability to cope effectively in unfamiliar cultural environments (Peng et al., 2015).

Motivational CQ is particularly important in expatriate assignments because cultural adaptation often requires sustained effort over extended periods in the face of ambiguity, stress, and occasional failure (Setti, Sommovigo, & Argentero, 2020; Han et al., 2022). Expatriates with strong motivational CQ are more likely to persist when confronted with cultural challenges, invest time and energy in learning host-country norms, and remain engaged rather than withdrawing from demanding situations (Chen et al., 2010; Song, Varma, & Zhang, 2021). Empirical studies show that motivational CQ predicts work, general, and interaction adjustment, psychological adaptation, performance, and lower turnover intentions beyond personality traits and other CQ dimensions (Huff et al., 2013; Akhal & Liu, 2019; Han et al., 2022; Wawrosz & Jurásek, 2022; Al-Krenawi et al., 2025). Consequently, expatriates with high motivational CQ demonstrate greater willingness to learn from intercultural experiences and are better able to sustain adaptation over time, even in culturally distant or challenging contexts (Han et al., 2022; Setti et al., 2020; Song et al., 2021).

2.5 Behavioral Cultural Intelligence

Behavioral CQ represents the capability to exhibit appropriate verbal and non-verbal actions when interacting across cultures (Ang et al., 2007; Davaei et al., 2022). This dimension enables individuals to adapt communication styles, gestures, facial expressions, and interpersonal behaviors according to cultural expectations, thereby reducing ambiguity and misunderstanding in

intercultural interactions (Ang et al., 2007; Hong, 2022; Maisyah, 2026). High behavioral CQ shifts focus from abstract opinions to concrete, observable actions that can be flexibly adjusted through ongoing cultural encounters (Wengel, 2023).

Within international oil and gas projects and other complex, multicultural project environments, behavioral CQ facilitates effective communication among multicultural project teams and stakeholders by enabling members to accommodate different verbal and nonverbal norms and adjust their interaction patterns accordingly (Presbitero, 2021; Shirish et al., 2023). In team and dyadic settings, higher behavioral (and overall) CQ has been linked to better cooperation, shared values, trust, and reduced conflict, all of which underpin successful collaboration (Ang et al., 2007; Davaei et al., 2022; Richter et al., 2021; Paing et al., 2024). Behavioral adaptability is thus critical for fostering trust and cooperation in multicultural teams, which in turn enhances interpersonal process effectiveness, social integration, and team performance (Moynihan et al., 2006, as summarized in Richter et al., 2021; Cheng, 2026; Wengel, 2023). Given the collaborative and high-stakes nature of project work, especially in sectors like construction, IT, and energy, behavioral CQ contributes to project success by supporting culturally sensitive interaction, conflict management, and relationship building across borders (Ayoko et al., 2021; Shirish et al., 2023; Paing et al., 2024).

3. REVIEW METHODOLOGY

3.1 Research Design

This study employed a systematic literature review methodology to synthesize existing evidence concerning the antecedents and outcomes of cultural intelligence among expatriate workers in international oil and gas projects. Systematic literature reviews are widely recognized as rigorous approaches for summarizing existing knowledge, identifying research gaps, and developing theoretical frameworks (Snyder, 2019).

Following established review protocols, the study adopted the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) framework developed by Page et al. (2021). PRISMA provides a transparent and replicable process for identifying, screening, evaluating, and synthesizing relevant literature.

3.2 Search Strategy

A comprehensive literature search was conducted to identify studies examining cultural intelligence among expatriates, international project personnel, and employees working in multicultural project environments. Searches were performed across seven major academic databases: Scopus, Web of Science, ScienceDirect, Emerald Insight, Taylor & Francis Online, Wiley Online Library, and Google Scholar. These databases were selected because they index high-quality publications in international human resource management, organizational behavior, project management, and energy sector research.

The search process focused on studies published between January 2003 and June 2025. The year 2003 was selected as the starting point because it marks the publication of Earley and Ang's seminal work introducing Cultural Intelligence Theory. A combination of keywords and Boolean operators was used to maximize retrieval of relevant studies. Search terms included: "cultural intelligence," "CQ," "expatriate workers," "international assignments," "cross-cultural competence," "oil and gas projects," "energy projects," "project management," "multicultural teams," "international project teams," "project performance," and "stakeholder management."

Several search strings were utilized, including:

- "Cultural Intelligence" AND "Expatriates"
- "Cultural Intelligence" AND "Project Management"
- "Cultural Intelligence" AND "Oil and Gas"
- "Expatriate Workers" AND "Project Performance"
- "Cross-Cultural Competence" AND "International Projects"
- "Cultural Intelligence" AND "Stakeholder Management"
- "Cultural Intelligence" AND "Multicultural Teams"

Backward and forward citation tracking was also conducted to identify additional relevant studies that may not have appeared in the initial database search.

3.3 Inclusion and Exclusion Criteria

The review employed explicit inclusion and exclusion criteria to ensure methodological rigor and relevance.

Inclusion Criteria

Studies were included if they:

- Examined cultural intelligence as a primary or secondary construct.
- Focused on expatriates, international employees, project personnel, or multicultural teams.
- Investigated antecedents or outcomes of cultural intelligence.
- Were published in peer-reviewed academic journals.
- Were written in English.
- Were published between 2003 and 2025.
- Reported empirical, theoretical, or review findings relevant to the study objectives.

Exclusion Criteria

Studies were excluded if they:

- Focused exclusively on domestic employees.
- Examined cultural diversity without reference to cultural intelligence.
- Were conference papers, editorials, dissertations, book reviews, or unpublished manuscripts.
- Did not provide sufficient methodological information.
- Were duplicate publications.

3.4 Study Selection Process

The database search initially identified 1,487 records. After removing duplicates, 1,112 unique articles remained. Title and abstract screening resulted in the exclusion of 823 studies that did not directly address cultural intelligence, expatriates, or international project environments.

The remaining 289 articles underwent full-text review. Following application of the inclusion and exclusion criteria, 96 studies were retained for final synthesis.

Table 1: PRISMA Flow Diagram.

Stage	Number of Studies
Records identified through database searching	1,487
Duplicate records removed	375
Records screened	1,112
Records excluded after title and abstract review	823
Full-text articles assessed	289
Full-text articles excluded	193
Studies included in final review	96

The final sample represented studies conducted across multiple geographical regions, including North America, Europe, Asia, the Middle East, Africa, and Australia.

3.5 Quality Assessment

To ensure the reliability and validity of the synthesized findings, the quality of included studies was evaluated using criteria adapted from established systematic review protocols (Kitchenham et al., 2008; Tranfield et al., 2003). Each study was assessed based on research design, sampling adequacy, measurement validity, analytical rigor, and relevance to the review objectives. Studies were assigned quality scores ranging from one to five, with higher scores indicating stronger methodological rigor.

Table 2: Quality Assessment Criteria.

Criterion	Assessment Focus
Research Design	Appropriateness of methodology
Sampling	Adequacy and representativeness
Measurement	Reliability and validity of constructs
Analysis	Statistical or analytical rigor
Relevance	Alignment with review objectives

Of the 96 studies included, 74 were classified as high quality, 18 as moderate quality, and 4 as satisfactory quality. No studies were excluded solely on the basis of quality because even lower-scoring studies provided useful contextual insights.

3.6 Data Extraction and Synthesis

Data extraction focused on author information, publication year, study context, sample characteristics, methodology, antecedents of cultural intelligence, outcomes of cultural intelligence, theoretical frameworks, and key findings. A thematic synthesis approach was employed to identify recurring patterns across studies. This method enabled the grouping of findings into broader conceptual categories and facilitated the development of an integrated framework linking antecedents, cultural intelligence, and project outcomes.

4. Antecedents of Cultural Intelligence among Expatriate Workers in International Oil and Gas Projects

The systematic review identified a range of antecedents that contribute to the development of cultural intelligence among expatriate workers in international oil and gas projects. Consistent with the proposed conceptual framework, these antecedents can be classified into individual-level, organizational-level, and project-level factors. This categorization reflects the multilevel nature of cultural intelligence development and highlights how personal characteristics, organizational interventions, and project environments collectively

shape expatriates' intercultural capabilities.

4.1.1 International Experience

International experience consistently emerges as a strong predictor of CQ because it offers repeated, situated opportunities to interact with culturally diverse others and to learn from everyday cross-cultural situations (Lee & Sukoco, 2010; Kurpis & Hunter, 2017; Teixeira & Klein, 2024). Work assignments, study abroad, travel, and residence abroad expose individuals to different norms, values, and practices, which enhance cultural awareness, adaptability, and intercultural communication skills (Iskhakova et al., 2021; Morin & Talbot, 2024; Setti et al., 2020). Prior international experience supports anticipatory adjustment and more realistic expectations, thereby improving cross-cultural adaptation and performance (Lee & Sukoco, 2010; Setti et al., 2020). Within international oil and gas projects, expatriates often rotate across multiple countries, encountering varied stakeholder groups, regulatory regimes, and workplace cultures. Such cumulative exposure can reinforce all four CQ dimensions by enriching cultural knowledge, prompting reflection, sustaining motivation to engage, and fostering flexible behavior in demanding, multicultural project environments (Setti et al., 2020; Teixeira & Klein, 2024; Morin & Talbot, 2024).

4.1.2 Personality Traits

Personality traits are another key individual antecedent of CQ. Research using the Five-Factor Model shows that openness to experience is consistently and positively linked to all four CQ factors, making it the most influential trait for CQ development (Ang et al., 2006; Kurnaz & İraz, 2024; McCrae & John, 1992). Individuals who are curious, imaginative, and receptive to novelty are more likely to seek out intercultural contact, experiment with new perspectives, and learn from cultural differences (Ang et al., 2006; Kurnaz & İraz, 2024). Other traits also contribute. Extraversion, conscientiousness, agreeableness, and emotional stability (low neuroticism) have been associated with higher CQ because they facilitate social engagement, reliability, cooperation, and resilience in cross-cultural settings (Ang et al., 2006; Kurnaz & İraz, 2024; Redelmeier et al., 2021). These traits support sustained interaction, effective emotion regulation, and adaptive behavior during challenging international assignments, complementing the effects of openness on CQ.

4.1.3 Language Proficiency

Language proficiency plays a critical role in intercultural understanding and communication, closely related to intercultural competence and adaptation (Huff, 2013; Karami & Izadpanah, 2022; Wilczewski & Alon, 2022; Wang et al., 2025). Expatriates who master the host-country language can interact more frequently and deeply with local employees, communities, and authorities, accelerating cultural learning and adjustment (Huff, 2013; Peltokorpi, 2010). Host-language skills enhance especially cognitive and behavioral CQ by enabling more accurate interpretation of nuances and more appropriate verbal and non-verbal behavior (Huff, 2013; Karami & Izadpanah, 2022; Wang et al., 2025). In complex, high-risk sectors such as international oil and gas, language proficiency also strengthens safety communication, stakeholder engagement, and knowledge sharing, processes that depend on clear, culturally attuned exchanges across organizational and national boundaries (Huff, 2013; Peltokorpi, 2010; Wilczewski & Alon, 2022; Karami & Izadpanah, 2022).

4.1.4 Learning Orientation

Learning orientation refers to an individual’s willingness to acquire new knowledge, experiment with new behaviors, and reflect on experience in order to improve (Ng et al., 2009; Van der Horst & Albertyn, 2018; Kurpis & Hunter, 2017). Individuals with a strong learning orientation actively seek

intercultural experiences, treat cultural differences as learning opportunities, and engage more fully in experiential learning cycles that drive CQ development (Ng et al., 2009; Xu & Chen, 2017; Teixeira & Klein, 2024).This orientatio is especially important for metacognitive and motivational CQ: it supports ongoing monitoring and revision of cultural

assumptions and sustains effort and interest in demanding cross-cultural situations (Ng et al., 2009; Van der Horst & Albertyn, 2018; Xu & Chen, 2017). In multicultural project environments, such as international oil and gas, a strong learning orientation encourages continuous reflection, experimentation, and adaptation, thereby reinforcing the growth of CQ over time (Ng et al., 2009; Setti et al., 2020; Teixeira & Klein, 2024).

4.2 Organizational-Level Antecedents of Cultural Intelligence

Organizational-level antecedents refer to the practices, systems, and developmental interventions through which organizations deliberately build the cultural intelligence of expatriate personnel. Research on cross-cultural training, expatriate support, mentoring, and global leadership development shows that well-designed interventions can strengthen expatriates' ability to interpret and respond effectively to cultural complexity in global roles (Black & Mendenhall, 1990; Tarique & Caligiuri, 2009; Caligiuri & Tarique, 2016; Caligiuri & Tarique, 2012; Presbitero, 2017).

4.2.1 Cross-Cultural Training

Cross-cultural training is the most extensively examined organizational antecedent of intercultural competence and CQ-related capabilities (Black & Mendenhall, 1990; Tarique & Caligiuri, 2009; Caligiuri & Tarique, 2016; Caligiuri & Tarique, 2012). Reviews of the training literature conclude that cross-cultural training is generally effective in improving cultural knowledge and adjustment and offer social learning–based frameworks for understanding how trainees acquire intercultural skills (Black & Mendenhall, 1990; Caligiuri & Tarique, 2012). Empirical studies show that both predeparture and in-country training can increase cultural knowledge and cross-cultural adjustment, with design features such as timing and distributed sessions influencing effectiveness (Hou et al., 2018; Tarique & Caligiuri, 2009; Mendenhall, 2019). Cross-cultural training has also been linked to gains in CQ and to better individual performance in global teams, especially when combined with intensive intercultural contact (Presbitero & Toledano, 2018; Presbitero & Toledano, 2016; Caligiuri & Tarique, 2016). These findings suggest that training programmes that integrate cultural information, practice opportunities, and reflection can enhance metacognitive, cognitive, motivational, and behavioral aspects of CQ.

4.2.2 Organizational Support

Organizational support encompasses HR practices and developmental systems that enable expatriates to function effectively in culturally complex environments. Conceptual and empirical work on international assignee selection, cross-cultural development, and cultural agility highlights the importance of structured development systems, including appropriate assignment design, ongoing support, and opportunities to build dynamic cross-cultural competencies (Presbitero, 2016; Presbitero, 2018; Presbitero, 2017). Organizations that invest in such practices help expatriates translate training and prior experience into sustained cultural learning and adaptive behavior, thereby indirectly fostering CQ-related capabilities.

4.2.3 Mentoring and Coaching

Mentoring, coaching, and other developmental relationships are key mechanisms through which expatriates transform experience into intercultural competence. Studies of global team members and international students show that CQ develops through ongoing intercultural contact, feedback, and reflection, and that higher CQ mitigates culture shock and improves adaptation and

performance (Presbitero & Toledano, 2016; Presbitero & Toledano, 2018; Mendenhall, 2011; Oddou & Mendenhall, 2013; Mendenhall, 2018). Developmental relationships that support sense-making around cultural encounters, encourage experimentation with new behaviors, and provide culturally informed guidance can therefore accelerate CQ development by embedding experiential learning within a supportive social context (Presbitero & Toledano, 2016; Mendenhall, 2011; Mendenhall, 2018).

4.2.4 Leadership Development

Global leadership development links intercultural competencies directly to organizational leadership pipelines. Work on global leadership emphasizes that leaders operating across borders face high levels of ambiguity, diversity, and interdependence, requiring intercultural competencies such as cross-cultural communication, relationship building, and cultural flexibility as prerequisites for effective global business leadership (Kempf & Holtbrügge, 2020). Frameworks for global leadership development stress that training should systematically target intercultural competencies and that experiential, competency-based programs can build the dynamic cross-cultural capabilities needed for global leadership effectiveness (Mendenhall, 2013; Kempf & Holtbrügge, 2020; Black & Mendenhall, 1989). In sectors like international oil and gas, leadership development initiatives that emphasize intercultural competencies, global mindset, and experiential learning are particularly relevant for strengthening leaders' CQ and effectiveness across cultural boundaries.

Project-Level Antecedents of Cultural Intelligence: Evidence from Recent Research

Project-level features such as multicultural teams, complexity, varied stakeholders, and repeated international exposure can create powerful learning environments that build cultural intelligence (CQ) for expatriates and project staff. Recent empirical and review work on expatriates, multicultural teams, and international projects helps unpack how these mechanisms operate in practice (Setti et al., 2020; Li et al., 2024; Morin & Talbot, 2021; Toumi & Su, 2025; Iskhakova & Ott, 2020; Jones et al., 2020; Stoermer et al., 2020).

4.3.1 Team Diversity

Work in culturally diverse teams repeatedly shows that interaction with colleagues from multiple cultures develops CQ and related intercultural capabilities. Longitudinal research finds that working in multicultural teams increases CQ over time and improves performance outcomes, especially when team trust is present (Erez et al., 2019; Liao & Thomas, 2025; Iskhakova & Ott, 2020). Conceptual work on collective cultural intelligence argues that diverse teams can develop a shared team-level CQ through ongoing interaction and team learning, which in turn enhances both team performance and members' individual CQ (Liao & Thomas, 2025). Reviews of multicultural innovation teams similarly highlight that cultural diversity, when managed with CQ, boosts creativity and problem solving (Jones et al., 2020; Song et al., 2021).

4.3.2 Project Complexity

Complex international projects (e.g., construction, large energy projects) expose expatriates to high uncertainty, cultural distance, and demanding roles, which amplify the value of CQ. Studies of international construction expatriates show that higher CQ increases work engagement and task performance and reduces premature return intentions in complex project environments (Chen et al., 2023). Other work links perceived cultural difference and learning flexibility to CQ, with CQ then improving adjustment and job performance in challenging foreign contexts (Li et al., 2024). Systematic reviews note that such demanding settings are central contexts where CQ translates into better adjustment, satisfaction, and performance (Morin & Talbot, 2021; Toumi & Su, 2025).

4.3.3 Stakeholder Diversity

International projects often involve multiple stakeholder groups (clients, local communities, regulators, partners). Research on expatriates shows that CQ facilitates knowledge sharing, relationship building, and organizational embeddedness across culturally different stakeholders (Stoermer et al., 2020). Conceptual and empirical work on cross-cultural competence similarly finds that higher intercultural capabilities help expatriates manage expectations, reduce misunderstandings, and perform better in culturally diverse environments (D'souza, 2022; Liao et al., 2021; Zhang, 2012).

4.3.4 International Project Exposure

Repeated international assignments and diverse host contexts act as experiential "fuel" for CQ development. Prior international work experience moderates how CQ translates into adjustment and effectiveness, with evidence that CQ's benefits are realized through cross-cultural adjustment and context-specific performance (Setti et al., 2020; Ali et al., 2019). Large-scale studies and systematic reviews show that CQ is positively linked to expatriate adjustment, knowledge transfer, satisfaction, and performance across many countries and assignments (Setti et al., 2020; Morin & Talbot, 2021; Toumi & Su, 2025; Nahar et al., 2025; Lee & Sukoco, 2010; O'Byrne, 2018). Recent work also demonstrates that greater cultural difference can stimulate higher CQ and, via CQ, better adjustment and job performance, underscoring the developmental value of challenging international project portfolios (Li et al., 2024; Lei et al., 2025).

Across recent empirical studies and systematic reviews, multicultural team membership, project complexity, stakeholder diversity, and repeated international assignments all provide situational triggers and learning opportunities that help expatriates develop and apply CQ. When supported by learning flexibility, engagement, and trust, these project-level features translate CQ into better adjustment, knowledge sharing, creativity, and performance in international oil, gas, and other global project settings.

5. Outcomes of Cultural Intelligence among Expatriate Workers in International Oil and Gas Projects

The review identified a broad range of outcomes associated with cultural intelligence. Consistent with the conceptual framework, these outcomes can be categorized into individual-level, project-level, and organizational-level outcomes.

5.1 Individual Outcomes of Cultural Intelligence

5.1.1 Expatriate Adjustment

Expatriate adjustment is the most extensively examined outcome of cultural intelligence. Multiple studies show that higher CQ is associated with better general, work, and interaction adjustment in host countries, partly because culturally intelligent expatriates more effectively interpret local norms, reduce uncertainty, and build supportive relationships (Malek & Budhwar, 2013; D'souza, 2022; Patrick & Ravindra, 2018). Meta-analytic evidence confirms that all four CQ dimensions positively predict cultural, work, and interactional adjustment, with motivational CQ emerging as the strongest dispositional predictor (Han et al., 2022). Emerging configurational and multilevel work further shows that CQ interacts with contextual factors such as cultural distance and perceived cultural novelty to produce high or low work adjustment profiles (Lei et al., 2025; Song et al., 2021; Li et al., 2024).

5.1.2 Employee Engagement

CQ also supports work engagement and related positive states. Among international construction expatriates, CQ increases task performance and reduces premature return intentions through higher work engagement, with cultural distance moderating these effects (Chen et al., 2023). For expatriate academics, CQ shows both direct and indirect positive effects on work engagement through psychological needs satisfaction (Ramalu & Subramaniam, 2019). Psychological availability has been identified as a key mediator linking CQ to both work engagement and job satisfaction, with job autonomy strengthening these indirect effects (Chen et al., 2023).

5.1.3 Assignment Success

Assignment success is reflected in task and contextual performance as well as the avoidance of premature return. Studies in Malaysia and the energy sector show that CQ directly improves expatriate task and contextual performance, and that this relationship is partially mediated by cross-cultural adjustment (Setti et al., 2020; Malek & Budhwar, 2013). Research integrating multiple intelligences finds that CQ, via work adjustment, contributes to higher performance and psychological well-being and lower premature return intention (Chew et al., 2019). Overall, culturally intelligent expatriates are more likely to meet assignment objectives and maintain effective relationships (Setti et al., 2020; Li et al., 2024; Malek & Budhwar, 2013; Chew et al., 2019).

5.1.4 Retention Intentions

CQ influences turnover and retention-related outcomes through adjustment, thriving, and embeddedness. Higher CQ reduces turnover intentions by enhancing general and work adjustment, with adjustment fully mediating CQ's effect on intentions to leave in some samples (Akhal & Liu, 2019). CQ also promotes thriving at work and actual retention, with organizational embeddedness strengthening CQ's positive impact on thriving (Ren et al., 2021). Other work shows that CQ decreases premature return intentions through enhanced work engagement (Chen et al., 2023)and that cultural intelligence contributes indirectly to retention via psychological well-being and reduced strain (Chew et al., 2019; Akhal & Liu, 2019; Ren et al., 2021).

5.2 Project Outcomes of Cultural Intelligence in International Projects

Cultural intelligence (CQ) is linked to a broad set of project outcomes for expatriates and multicultural teams, including performance, stakeholder relations, safety, collaboration, and knowledge processes (Setti et al., 2020; Vlajcic et al., 2018; Toumi & Su, 2025; Morin & Talbot, 2021).

5.2.1 Project Performance

Higher CQ is associated with better assignment-specific and task performance in energy and construction projects, partially via improved cross-cultural adjustment and work engagement (Setti et al., 2020; Chen et al., 2023). CQ also predicts successful delivery of complex multicultural construction projects and overall project success when combined with appropriate project governance (Aleid & Ochieng, 2026; Aleid & Ochieng, 2025). In international development projects, CQ shows a significant positive effect on project performance, fully mediated by task interdependence within teams (Muhammad et al., 2024). Multicultural teams with higher collective

CQ exhibit greater performance improvement over time (Moon, 2013)and better outcomes in global project teams when CQ-motivation supports clear roles and communication norms (Henderson et al., 2018).

5.2.2 Stakeholder Management Effectiveness

CQ supports trust, role clarity, and communication norms in global project teams, indirectly enhancing members' satisfaction and performance (Henderson et al., 2018). In complex construction projects, CQ improves cross-cultural management and project performance in culturally diverse stakeholder settings (Aleid & Ochieng, 2026; Aleid & Ochieng, 2025). CQ also promotes organizational embeddedness and knowledge sharing, with embeddedness mediating CQ's effect on expatriates' knowledge-related contributions to host organizations (Stoermer et al., 2020), which is central to managing stakeholder expectations.

5.2.3 Safety Performance

Direct empirical work on CQ and safety is limited. However, studies in complex projects and high-reliability contexts indicate that CQ enhances coordination, reduces misunderstandings, and improves communication under stress, all of which are critical for safety in multicultural operations (Chen et al., 2023; Ziakkas et al., 2025; Eyiah et al., 2025). Conceptual and qualitative work in construction highlights cultural diversity management, communication, and mutual respect as key to safe, high-performing multinational project teams, with CQ noted as an important enabling competence (Eyiah et al., 2025).

5.2.4 Team Collaboration

CQ improves team processes in multicultural settings. Teams with higher CQ better manage the negative effects of cultural diversity on performance and show superior performance trajectories over time (Moon, 2013). In virtual global project teams, CQ (especially motivational CQ) strengthens the link between shared communication norms, role clarity, trust, and members' performance and satisfaction (Henderson et al., 2018; Erez et al., 2019). Systematic reviews confirm positive CQ effects on social outcomes such as cohesion and collaboration during expatriation (Morin & Talbot, 2021; Toumi & Su, 2025).

5.2.5 Knowledge Transfer

CQ is a key enabler of knowledge transfer (KT**)**. Expatriate managers' CQ (all four dimensions) significantly improves both conventional and reverse KT in multinationals, acting as a "filter" that helps encode and decode knowledge across cultures (Vlajcic et al., 2018). CQ also strengthens expatriates' organizational embeddedness, which in turn promotes knowledge sharing in foreign workplaces (Stoermer et al., 2020). Dyadic research shows that when knowledge receivers (expatriates or host-country nationals) have high CQ, senders perceive more trust and shared vision, leading to more effective knowledge acquisition (Hsu et al., 2021). Systematic reviews identify knowledge transfer as a core positive outcome of CQ for expatriates (Toumi & Su, 2025; Morin & Talbot, 2021). Across global project settings, CQ consistently enhances performance, collaboration, and knowledge processes, and supports more effective stakeholder relationships. Evidence for direct safety effects is emerging but points in the same direction: culturally intelligent individuals and teams communicate more effectively and coordinate better in complex, multicultural project environments.

5.3 Organizational Outcomes of Cultural Intelligence

Cultural intelligence (CQ) functions as a strategic, intangible capability that links individual expatriate behavior to firm-level leadership quality, learning, competitive positioning, and project success, including in energy and oil–gas–type project settings (Nosratabadi et al., 2020; Setti et al., 2020; Yitmen, 2013; Aleid & Ochieng, 2026).

5.3.1 Leadership Effectiveness

Leader CQ is positively related to organizational performance, both directly and indirectly via supportive organizational structures, in firms operating in multicultural environments (Nosratabadi et al., 2020). CQ is described as a core global leadership competency, with evidence that it predicts leadership effectiveness in culturally diverse teams beyond emotional and social intelligence (Nosratabadi et al., 2020). Empirical work shows that CQ underpins global leadership and communication effectiveness, which together drive organizational effectiveness in multicultural service settings (Resho & Singh, 2025). In global project teams, motivational CQ strengthens the impact of role clarity and shared communication norms on members' satisfaction and performance, highlighting its importance for project leaders coordinating virtual, multicultural teams (Henderson et al., 2018). Conceptual and review work similarly positions CQ as a critical determinant of leadership success in global business, negotiations, and alliances (Lee, 2023; Sharma & Makhija, 2024).

5.3.2 Organizational Learning

CQ supports organizational learning and knowledge processes by enhancing expatriates' organizational embeddedness and knowledge sharing. A large multi-country study finds that expatriate CQ increases organizational embeddedness, which in turn promotes knowledge sharing in foreign workplaces (Stoermer et al., 2020). Expatriate managers' CQ (all four dimensions) acts as a "coding/decoding filter" that improves both conventional and reverse knowledge transfer in multinational companies (Vlajčić et al., 2018). Systematic and integrative reviews identify knowledge transfer and learning across borders as core organizational-level outcomes of CQ, embedded in themes such as international strategic achievement and cross-cultural performance (Mammadov & Wald, 2025; Stoermer et al., 2020). Project-oriented work in construction shows that organizational CQ enables firms to adapt processes to diverse cultural environments and to manage international strategic alliances more effectively, reinforcing learning and capability reconfiguration in project-based industries (Yitmen, 2013).

5.3.3 Competitive Advantage

At the firm level, CQ is described as a valuable, rare, and hard-to-imitate resource that supports competitive advantage in multicultural markets (Nosratabadi et al., 2020). Organizational CQ in international construction is framed as a competitive capability that helps firms access new markets, manage global partners, and reconfigure processes to fit local cultural conditions, thereby enhancing international performance (Yitmen, 2013). In export settings, managers' CQ improves firm-level export performance, partly by building organizational capabilities for international knowledge acquisition and customer experience quality in culturally diverse markets (Charoensukmongkol, 2016; Nasta et al., 2026). A recent systematic review of CQ in firms' international activities identifies "international strategic achievement" as a key outcome domain, showing that CQ contributes to better strategic execution, relationship management, and adaptation in global operations (Mammadov & Wald, 2025). Broader leadership and negotiation reviews similarly argue that CQ-equipped leaders are better positioned to forge alliances, negotiate effectively, and sustain organizational productivity in global competition (Lee, 2023; Sharma & Makhija, 2024).

5.3.4 Project Success

In project-based contexts, including complex construction and infrastructure projects that mirror many characteristics of international oil and gas projects, CQ is linked to team performance and project delivery. A construction-specific framework demonstrates that CQ predicts how well cross-cultural management works and how effectively complex multicultural projects are delivered; CQ

effects depend on governance attributes such as cultural diversity intensity and procurement pathways (Aleid & Ochieng, 2026). Research on global project teams shows that CQ-motivation indirectly improves project performance and satisfaction through better role clarity, communication norms, and trust (Henderson et al., 2018). Qualitative work on multinational construction teams identifies cultural intelligence, along with communication, mutual respect, and safety practices, as central to sustaining high performance and safe operations across culturally diverse project participants (Eyiah et al., 2025). In multinational firms more broadly, CQ-enhanced knowledge transfer, relationship management, and strategic alliance capability feed into project and organizational success in international operations (Setti et al., 2020; Yitmen, 2013; Aleid & Ochieng, 2026). Together, these findings support viewing CQ as a strategic project capability that underpins performance, stakeholder satisfaction, knowledge flows, and risk management in large international projects.

Across global business, construction, and project settings, CQ at individual, team, and organizational levels supports effective leadership, robust learning and knowledge systems, competitive positioning, and successful complex projects. Evidence from sectors structurally similar to international oil and gas projects, multinational construction, infrastructure, and global project organizations, indicates that CQ operates as a strategic organizational capability that helps firms navigate cultural complexity, manage stakeholders, and sustain performance in international project portfolios.

Table 4: Summary of Antecedents and Outcomes of Cultural Intelligence among Expatriate Workers in International Oil and Gas Projects.

Category	Construct	Description	Key Supporting Sources
Individual-Level Antecedent	International Experience	Exposure to foreign cultures through work, travel, study, and residence abroad that enhances cultural learning and adaptability.	Lee & Sukoco (2010); Setti et al. (2020); Iskhakova et al. (2021); Morin & Talbot (2024); Teixeira & Klein (2024)
Individual-Level Antecedent	Personality Traits	Personal characteristics such as openness to experience, extraversion, conscientiousness, and emotional stability that facilitate CQ development.	Ang et al. (2006); Redelmeier et al. (2021); Kurnaz & İraz (2024)
Individual-Level Antecedent	Language Proficiency	Ability to communicate effectively across cultures and understand cultural nuances.	Huff (2013); Karami & Izadpanah (2022); Wilczewski & Alon (2022); Wang et al. (2025)
Individual-Level Antecedent	Learning Orientation	Willingness to acquire new knowledge and continuously learn from intercultural experiences.	Ng et al. (2009); Xu & Chen (2017); Van der Horst & Albertyn (2018); Teixeira & Klein (2024)
Organizational-Level Antecedent	Cross-Cultural Training	Structured interventions that develop intercultural knowledge, skills, and adaptability.	Black & Mendenhall (1990); Tarique & Caligiuri (2009); Hou et al. (2018); Presbitero & Toledano (2018)
Category	**Construct**	**Description**	**Key Supporting Sources**
Organizational-Level Antecedent	Organizational Support	Organizational systems and resources that facilitate expatriate adaptation and intercultural learning.	Presbitero (2016); Presbitero (2017); Caligiuri & Tarique (2016)
Organizational-Level Antecedent	Mentoring and Coaching	Developmental relationships that facilitate cultural learning through guidance, feedback, and reflection.	Mendenhall (2011); Oddou & Mendenhall (2013); Presbitero & Toledano (2016); Mello et al. (2023)
Organizational-Level Antecedent	Leadership Development	Programs that strengthen intercultural leadership competencies and global mindset.	Black & Mendenhall (1989); Mendenhall (2013); Kempf & Holtbrügge (2020); Mendenhall et al. (2024)
Project-Level Antecedent	Team Diversity	Exposure to multicultural teams that promotes intercultural interaction and learning.	Erez et al. (2019); Jones et al. (2020); Iskhakova & Ott (2020); Liao & Thomas (2025)

Project-Level Antecedent	Project Complexity	Exposure to culturally complex, uncertain, and challenging project environments.	Setti et al. (2020); Chen et al. (2023); Morin & Talbot (2021); Li et al. (2024)
Project-Level Antecedent	Stakeholder Diversity	Interaction with culturally diverse clients, regulators, communities, and project stakeholders.	Stoermer et al. (2020); Liao et al. (2021); D'Souza (2022)
Project-Level Antecedent	International Project Exposure	Participation in multinational projects and repeated international assignments.	Lee & Sukoco (2010); Setti et al. (2020); Morin & Talbot (2021); Toumi & Su (2025)
Cultural Intelligence Dimension	Metacognitive CQ	Awareness and regulation of cultural assumptions during intercultural interactions.	Ang et al. (2007); Van Dyne et al. (2012); Huang (2023)
Cultural Intelligence Dimension	Cognitive CQ	Knowledge of cultural norms, values, institutions, and practices.	Ang et al. (2007); Ang & Van Dyne (2015)
Cultural Intelligence Dimension	Motivational CQ	Interest, confidence, and persistence in engaging across cultures.	Ang et al. (2007); Han et al. (2022); Wawrosz & Jurásek (2022)
Cultural Intelligence Dimension	Behavioral CQ	Ability to adapt verbal and non-verbal behavior across cultures.	Ang et al. (2007); Davaei et al. (2022); Paing et al. (2024)
Individual Outcome	Expatriate Adjustment	Successful adaptation to work, social, and general living conditions abroad.	Malek & Budhwar (2013); Setti et al. (2020); Han et al. (2022); Lei et al. (2025)
Individual Outcome	Employee Engagement	Increased commitment, enthusiasm, and involvement in work activities.	Ramalu & Subramaniam (2019); Chen et al. (2023)
Individual Outcome	Assignment Success	Achievement of assignment objectives and successful completion of expatriate postings.	Malek & Budhwar (2013); Setti et al. (2020); Chew et al. (2019)
Individual Outcome	Retention Intentions	Reduced turnover intentions and lower likelihood of premature return.	Akhal & Liu (2019); Ren et al. (2021); Chen et al. (2023)
Project Outcome	Project Performance	Achievement of project objectives relating to cost, schedule, quality, and stakeholder satisfaction.	Chen et al. (2023); Muhammad et al. (2024); Aleid & Ochieng (2026)
Project Outcome	Stakeholder Management Effectiveness	Improved management of diverse stakeholder relationships and expectations.	Henderson et al. (2018); Stoermer et al. (2020); Aleid & Ochieng (2026)
Project Outcome	Safety Performance	Enhanced communication, coordination, and compliance with safety requirements.	Eyiah et al. (2025); Ziakkas et al. (2025); Chen et al. (2023)
Project Outcome	Team Collaboration	Improved teamwork, trust, cohesion, and communication among multicultural teams.	Moon (2013); Henderson et al. (2018); Erez et al. (2019)
Project Outcome	Knowledge Transfer	Effective sharing and transfer of knowledge across cultures and organizations.	Vlajčić et al. (2018); Stoermer et al. (2020); Hsu et al. (2021)
Organizational Outcome	Leadership Effectiveness	Improved ability to lead and influence culturally diverse teams.	Nosratabadi et al. (2020); Resho & Singh (2025); Henderson et al. (2018)

Category	**Construct**	**Description**	**Key Supporting Sources**
Organizational Outcome	Organizational Learning	Enhanced organizational knowledge sharing, learning, and capability development.	Stoermer et al. (2020); Vlajčić et al. (2018); Mammadov & Wald (2025)
Organizational Outcome	Competitive Advantage	Improved international competitiveness through superior intercultural capabilities.	Yitmen (2013); Charoensukmongkol (2016); Nosratabadi et al. (2020)
Organizational Outcome	Project Success	Successful delivery of complex international projects and long-term organizational performance.	Aleid & Ochieng (2026); Henderson et al. (2018); Eyiah et al. (2025)

6. Conceptual Framework

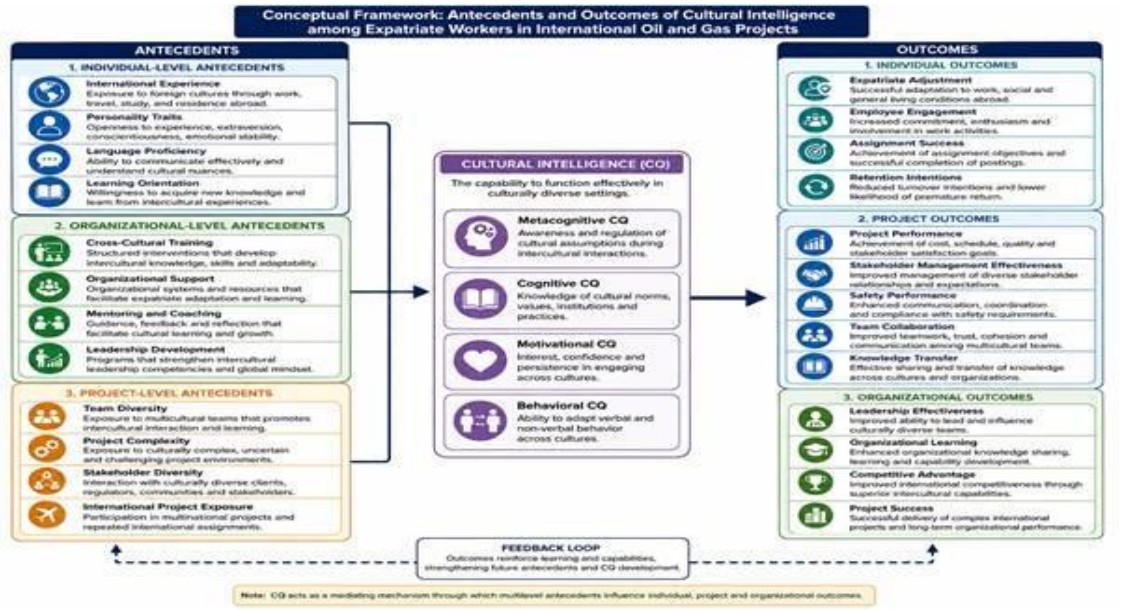

Figure 1: Conceptual Framework.

7. Future Research Agenda

The findings of this review reveal several important opportunities for future research. First, although the literature consistently demonstrates the importance of cultural intelligence in expatriate effectiveness, most existing studies employ cross-sectional research designs. Consequently, there remains limited understanding of how cultural intelligence develops and evolves throughout the expatriate lifecycle. Future studies should adopt longitudinal research designs to examine changes in metacognitive, cognitive, motivational, and behavioral cultural intelligence before, during, and after international assignments. Such studies would provide deeper insights into the developmental processes through which individual, organizational, and project-level antecedents shape CQ over time.

Second, the existing evidence is heavily concentrated in Asia, Europe, and North America, while comparatively fewer studies have been conducted in Africa, the Middle East, and Latin America. Given the increasing concentration of international oil and gas investments in these regions, future research should investigate how contextual factors such as national culture, institutional environments, political conditions, and stakeholder expectations influence the development and effectiveness of cultural intelligence among expatriate workers.

Third, future studies should examine the multilevel relationships proposed in the conceptual framework. Existing research predominantly focuses on individual-level outcomes such as expatriate adjustment and performance, while limited attention has been devoted to project-level outcomes including stakeholder management effectiveness, safety performance, team collaboration, and knowledge transfer, as well as organizational-level outcomes such as organizational learning, competitive advantage, and project success. Future empirical studies should therefore test the direct and indirect relationships among antecedents, cultural intelligence dimensions, and multilevel outcomes using advanced analytical techniques such as multilevel modeling and structural equation modeling.

Fourth, rapid digital transformation within the oil and gas sector presents new opportunities for research. Increasing reliance on virtual project teams, remote operations, digital collaboration platforms, artificial intelligence, and virtual stakeholder engagement may alter how cultural

intelligence is developed and applied. Future research should examine whether virtual work environments require new forms of cultural intelligence and whether traditional CQ dimensions remain equally effective in digitally mediated intercultural interactions.

Fifth, future studies should investigate potential mediating and moderating variables that may explain or strengthen the relationship between cultural intelligence and project outcomes. Variables such as psychological resilience, intercultural communication competence, organizational culture, leadership style, trust, team cohesion, stakeholder complexity, and project governance may provide additional explanatory power regarding how CQ contributes to expatriate and project success.

Finally, there is a need for more sector-specific research within the oil and gas industry. While much of the existing evidence is derived from expatriate populations across multiple industries, future studies should examine CQ within specific oil and gas project phases such as exploration, drilling, production, transportation, refinery operations, and decommissioning. Such research would enhance understanding of the unique cultural challenges associated with different project environments and operational contexts.

8. Theoretical Implications

This review makes several important contributions to Cultural Intelligence Theory and project management scholarship. First, it extends Cultural Intelligence Theory beyond traditional multinational corporate environments by demonstrating its applicability within international oil and gas projects, which are characterized by high levels of technical complexity, multicultural collaboration, stakeholder diversity, and operational risk. The review confirms that cultural intelligence functions as a critical capability through which expatriates navigate culturally complex project environments and achieve effective performance.

Second, the review advances Cultural Intelligence Theory by highlighting the multilevel nature of CQ development. The findings demonstrate that cultural intelligence is influenced not only by individual characteristics such as international experience, personality traits, language proficiency, and learning orientation, but also by organizational interventions and project-level contextual factors. This broader perspective suggests that CQ should be viewed as a dynamic capability emerging from the interaction between individuals and their organizational and project environments.

Third, the review contributes to project management theory by positioning cultural intelligence as a strategic project capability rather than merely an individual competency. The findings indicate that CQ influences a wide range of project-level outcomes including project performance, stakeholder management effectiveness, safety performance, team collaboration, and knowledge transfer. This perspective broadens existing project management literature by emphasizing the importance of intercultural capabilities in achieving project success within global project environments.

Finally, the study contributes to international human resource management literature by integrating fragmented evidence concerning the antecedents and outcomes of cultural intelligence into a unified conceptual framework. The proposed framework provides a theoretically grounded foundation for future empirical investigations and offers a basis for examining complex multilevel relationships among individual, organizational, project, and performance variables.

9. Practical Implications

The findings of this review have significant implications for organizations managing international oil and gas projects. Given the central role of cultural intelligence in expatriate effectiveness and

project success, organizations should adopt a comprehensive and systematic approach to CQ development.

At the organizational level, firms should invest in cross-cultural training programs that extend beyond basic cultural awareness and incorporate experiential learning, intercultural simulations, language development, stakeholder engagement exercises, and scenario-based problem solving. Organizations should also strengthen expatriate support systems through mentoring, coaching, leadership development initiatives, and structured learning opportunities that facilitate continuous intercultural development.

Human resource managers should incorporate cultural intelligence considerations into expatriate selection, deployment, and performance management processes. In addition to technical expertise, organizations should evaluate candidates' international experience, learning orientation, language capabilities, and intercultural adaptability when making expatriate staffing decisions.

At the project level, project leaders should intentionally create multicultural learning environments that encourage interaction, collaboration, and knowledge sharing among culturally diverse project participants. Project managers should also recognize stakeholder diversity and cultural complexity as strategic project considerations requiring proactive management. Developing culturally intelligent project teams can contribute to improved communication, stronger stakeholder relationships, enhanced safety performance, and more effective project execution.

Furthermore, organizations should view cultural intelligence as a strategic organizational resource that contributes not only to expatriate effectiveness but also to organizational learning, competitive advantage, and long-term project success. Investments in CQ development should therefore be considered investments in organizational capability building and sustainable international performance.

10. CONCLUSION

This systematic literature review synthesized evidence regarding the antecedents and outcomes of cultural intelligence among expatriate workers in international oil and gas projects. Drawing upon evidence from ninety-six peer-reviewed studies published between 2003 and 2025, the review identified a comprehensive set of individual-level, organizational-level, and project-level antecedents that contribute to the development of cultural intelligence. These antecedents include international experience, personality traits, language proficiency, learning orientation, cross-cultural training, organizational support, mentoring and coaching, leadership development, team diversity, project complexity, stakeholder diversity, and international project exposure.

The review further demonstrates that cultural intelligence generates important outcomes across multiple levels. At the individual level, CQ enhances expatriate adjustment, employee engagement, assignment success, and retention intentions. At the project level, cultural intelligence contributes to improved project performance, stakeholder management effectiveness, safety performance, team collaboration, and knowledge transfer. At the organizational level, CQ strengthens leadership effectiveness, organizational learning, competitive advantage, and overall project success.

The findings establish cultural intelligence as a strategic capability that links individual competencies, organizational interventions, and project environments to successful outcomes in international oil and gas projects. The proposed conceptual framework highlights the central mediating role of metacognitive, cognitive, motivational, and behavioral cultural intelligence in translating multilevel antecedents into valuable individual, project, and organizational outcomes.

As international oil and gas projects continue to expand across culturally diverse environments, organizations that systematically develop cultural intelligence among expatriate workers will be

better positioned to improve project performance, strengthen stakeholder relationships, enhance organizational learning, and sustain competitive advantage in an increasingly globalized industry.

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