



Cultural intelligence in cross-cultural work practices: A qualitative study in a multinational engineering organization

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Abstract

Purpose – This study examines how employees implement Cultural Intelligence (CQ) in everyday cross-cultural work practices within Company X, a multinational engineering/EPC organization with an engineering design unit in Indonesia. The study addresses how the four CQ dimensions are enacted, how their implementation varies across Unit A (Headquarters), Unit B (Middle East Operations), Malaysia, and Thailand, which contextual factors shape implementation, and how CQ supports cross-cultural collaboration.

Design/methodology/approach – A deductive qualitative comparative case-study design was used, with the Four-Dimensional CQ Model serving as the analytical lens. Data were obtained primarily through in-depth semi-structured interviews with nine purposively selected employees representing engineering and supporting functions. Interview evidence was organized through deductive thematic analysis and supported by NVivo coding. The empirical evidence base for the findings reported here is entirely interview-based; field notes were consulted only as contextual background and are not presented as an independent source of evidence.

Findings – All four CQ dimensions were evident, but they were embedded in ordinary professional activities rather than treated as separate intercultural events. Metacognitive CQ was expressed through preparation, monitoring, reflection, and assumption checking. Cognitive CQ extended beyond national cultural knowledge to organizational, technical, regulatory, and professional knowledge. Motivational CQ appeared through learning orientation, persistence, professional responsibility, and continued engagement. Behavioural CQ was highly visible through adaptive communication, formality, documentation, feedback, virtual coordination, and stakeholder management. The findings further indicate that the same CQ capability may be enacted differently depending on interaction context and professional role.

Research limitations – The study is bounded by a single multinational engineering organization, nine participants, and a qualitative design. The evidence base is entirely interview-based. The study does not quantitatively measure CQ or establish causal relationships between CQ and project performance. Malaysia and Thailand were also represented by more limited context-specific evidence than India and KSA.

Implications – The findings suggest that IHRM can support CQ through role-based development, cross-cultural onboarding, mentoring and experiential learning, leadership development, virtual collaboration guidelines, developmental career conversations, and international exposure. CQ development is better treated as a continuous capability-building process than as a one-time cultural awareness intervention.

Originality – Beyond documenting qualitative evidence in an engineering/EPC setting, the study's main theoretical contribution is to reframe CQ as a professionally enacted capability whose four dimensions are triggered and sequenced by features of the professional task rather than by cultural difference alone, and it derives testable propositions for future research from this reframing. It also demonstrates how CQ varies across multiple operational contexts within one organization while preserving the established four-dimensional theoretical structure.

Keywords: Cultural Intelligence, Cross-Cultural Work Practices, Multinational Engineering, International Human Resource Management, Qualitative Case Study

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INTRODUCTION

Globalization has increased the need for multinational organizations to coordinate people, knowledge, and business activities across national and organizational boundaries. Employees increasingly work with colleagues whose communication practices, expectations, and working arrangements differ from their own. In engineering and EPC environments, these differences are consequential because technical work depends on accurate information exchange, project coordination, documentation, review, schedules, and decisions across geographical locations (Ang et al., 2007; Stahl et al., 2010).

Multicultural work can create challenges when employees interpret communication and coordination practices through their own expectations. Research has linked cultural diversity with both opportunities and coordination difficulties, while communication differences may affect trust, shared understanding, and collaboration in multinational teams (Ochieng & Price, 2010; Tenzer et al., 2014). Virtual collaboration can intensify these challenges because employees have fewer face-to-face cues and must coordinate across geographical and time-zone boundaries. Evidence from global virtual teams further indicates that Cultural Intelligence is relevant to conflict management and team functioning (Davaei et al., 2022, 2025).

Cultural Intelligence (CQ) refers to an individual's capability to function effectively in culturally diverse situations (Earley & Ang, 2003). The Four-Dimensional CQ Model distinguishes metacognitive, cognitive, motivational, and behavioural capabilities (Ang et al., 2007; Van Dyne et al., 2012). Metacognitive CQ concerns awareness and regulation of cultural assumptions; cognitive CQ concerns knowledge of cultural and contextual systems; motivational CQ concerns the interest, confidence, and effort invested in cross-cultural interaction; and behavioural CQ concerns the ability to adapt verbal and non-verbal behaviour to the situation. Behavioural CQ, in particular, is reflected in how employees adjust their communication and conduct in response to the immediate cross-cultural situation they face (Alqrawi, 2025).

Although CQ research has developed substantially, much of the literature has emphasized measurement, intercultural adjustment, and outcomes, with CQ shown to correlate positively with cross-cultural adjustment and performance (Caprar et al., 2022). Reviews of the field have called for research that continues to examine how CQ operates in varied organizational contexts (Ott & Michailova, 2018). This study responds to that need by examining CQ as it is enacted during routine professional activities rather than treating it only as a measurable individual attribute.

The empirical setting is Company X, an Indian-headquartered multinational engineering/EPC organization. The study focuses on employees at its Indonesian engineering unit and their interactions with Unit A (Headquarters), Unit B (Middle East Operations), and ASEAN operations, particularly Malaysia and Thailand. Preliminary workplace observations identified recurring situations involving technical clarification, communication expectations, approval processes, project coordination, and virtual interaction. These observations provide the organizational context for the study rather than constituting findings.

The research problem is therefore not simply whether employees possess Cultural Intelligence, but how CQ becomes visible when professional work is conducted across cultural

and organizational boundaries. The study uses the Four-Dimensional CQ Model deductively to distinguish the cultural component embedded within otherwise ordinary activities such as technical preparation, reporting, HR coordination, documentation, stakeholder management, and project decision-making. This positioning is consistent with the view that CQ concerns the individual's capability to interpret and respond to culturally diverse situations rather than describing national cultures themselves (Thomas et al., 2008; Semenov & Randrianasolo, 2024).

Three gaps motivate the study. First, relatively limited qualitative evidence addresses the everyday enactment of CQ in multinational engineering/EPC work. Second, there is limited attention to how CQ implementation differs across multiple operational contexts within one organization, particularly across India, the Middle East, and Southeast Asia. Third, the connection between everyday CQ practices and IHRM systems remains underdeveloped. The present study addresses these gaps through a qualitative comparison of employee experiences across Unit A (Headquarters), Unit B (Middle East Operations), Malaysia, and Thailand.

Accordingly, the study asks: (1) How do employees implement the four dimensions of CQ in cross-cultural interactions? (2) What similarities and differences appear across Unit A (Headquarters), Unit B (Middle East Operations), Malaysia, and Thailand? (3) What individual and organizational factors influence CQ implementation? and (4) What role does CQ play in supporting effective cross-cultural collaboration? The study aims to provide contextual evidence for CQ theory and practical implications for IHRM in multinational engineering organizations.

METHOD

Research approach. The study adopted an interpretivist, deductive qualitative approach using a comparative case-study strategy. A qualitative design was considered appropriate because the research questions concern how employees interpret situations, respond to contextual differences, and adapt their practices in actual workplace interactions. The Four-Dimensional CQ Model was used as the initial analytical framework rather than as a quantitative measurement instrument (Creswell, 2014; Saunders et al., 2023).

Research setting and participants. The case was Company X's Indonesian engineering design unit. The interaction contexts examined were Unit A (Headquarters), Unit B (Middle East Operations), Malaysia, and Thailand. Nine employees were selected purposively because they had direct experience with cross-cultural collaboration. The participants comprised six Indonesian employees and three Indian expatriates and represented engineering and supporting functions, including engineering/project responsibilities and HR, finance, or administrative work. Participant codes INF-01 to INF-09 were used to protect confidentiality.

Table 1 presents the anonymized profile of the nine participants, including their role, function, organizational tenure, nationality, and main cross-cultural interaction context, to allow readers to evaluate the appropriateness of the purposive sample against the four interaction contexts compared in this study.

Table 1. Anonymized Participant Profile

Code	Role	Function	Company Tenure	Nationality	Main Cross-Cultural Interaction Context
INF-01	Assistant Engineering Manager, Electrical	Engineering	3 years	Indonesian	India, Unit B, ASEAN (Malaysia and Thailand); virtual meetings and technical coordination
INF-02	Senior Design Engineer, Civil	Engineering	3 years	Indonesian	India, Unit B, ASEAN (Malaysia and Thailand);

Code	Role	Function	Company Tenure	Nationality	Main Cross-Cultural Interaction Context
					design review and project coordination
INF-03	Assistant Manager, Electrical	Engineering	3 years	Indonesian	India and Unit B; technical review, standards, and documentation
INF-04	Project Director	Engineering	32 years	Indian	India and ASEAN (Malaysia and Thailand); project management and stakeholder alignment
INF-05	Finance, Admin, and HR Manager	Engineering	18 years	Indian	India, Unit B, ASEAN (Malaysia and Thailand); business support, finance, HR, and administrative coordination
INF-06	Engineering Manager, Civil	Engineering	2 years	Indonesian	India, Unit B, ASEAN (Malaysia and Thailand); engineering coordination and regional project interaction
INF-07	Supervisor, Finance, Accounts, and HR	Supporting	2 years	Indonesian	India, Unit B, ASEAN (Malaysia and Thailand); financial and administrative coordination
INF-08	Lead Engineering Manager, Electrical	Engineering	9 years	Indian	India, Unit B, ASEAN (Malaysia and Thailand); technical decision-making and coordination
INF-09	Assistant Manager HR / HRBP ASEAN	Supporting	1 year	Indonesian	India, Unit B, ASEAN; HR policy, mobility, and regional stakeholder coordination

Source: Developed by the researcher from anonymized participant records, 2026.

Data collection. Primary evidence came from in-depth semi-structured interviews lasting approximately 30–60 minutes. The interview protocol covered the four CQ dimensions, cross-cultural interaction contexts, comparative experiences, contextual challenges, and IHRM practices. The reported findings rely entirely on this interview evidence. Researcher field notes made during and after the interviews were consulted only as contextual background for interpreting participants' accounts; no separate observation or document evidence was used as an independent basis for the findings, and no interview statement is presented as a direct observation finding. The research procedure incorporated participant consent, anonymity, confidentiality, and the right to withdraw.

Data analysis. Interview material was analyzed using deductive thematic analysis. Initial coding followed the four CQ dimensions and was subsequently refined into context-specific themes. We examined metacognitive CQ through preparation, monitoring, reflection, assumption checking, and contextual adjustment. Cognitive CQ focused on cultural, organizational, technical, regulatory, and professional knowledge. Motivational CQ covered

learning orientation, willingness, confidence, persistence, and continued engagement. Behavioural CQ covered communication, formality, feedback, documentation, meeting practices, virtual coordination, and stakeholder management. NVivo was used to organize the coding structure and visualize relationships among codes; coding frequency was interpreted descriptively rather than as a measure of individual CQ level.

Trustworthiness. Credibility was supported through systematic coding and comparison of participant accounts. Transferability was addressed through detailed description of the engineering setting and interaction contexts. Dependability was supported by an explicit coding framework and audit trail, while confirmability was strengthened by distinguishing interview evidence from contextual interpretation. Because the empirical evidence base is entirely interview-based, triangulation in this study refers to systematic comparison across the nine participant accounts rather than cross-source verification against independent observation or document evidence (Fereday & Muir-Cochrane, 2006; Bowen, 2009; Patton, 2015).

RESULTS AND DISCUSSION

Overall pattern of CQ implementation

The nine interviews indicate that Cultural Intelligence was embedded within normal professional activities. Participants did not describe a separate 'CQ activity'; instead, CQ became visible when technical, administrative, HR, finance, or project tasks involved culturally and organizationally different counterparts. The analytical sequence identified in this study can be summarized as Professional Activity → Cross-Cultural Context → CQ-Relevant Element → CQ Dimension → Work Practice.

NVivo coding showed evidence across all four dimensions. Behavioural CQ produced the highest number of coding references (120), while Metacognitive CQ recorded 104 references and the highest indicative coverage (0.1156); Cognitive CQ and Motivational CQ each recorded 91 references. These figures are descriptive indicators of visibility in the interview corpus, not scores of participants' CQ. The pattern nevertheless suggests that adaptive communication behaviour was particularly visible, while preparation, reflection, contextual knowledge, and motivation were also recurring features.

Table 2 presents the coding structure underlying these figures, including the number of code nodes, coding references, and indicative coverage per CQ dimension. Coverage refers to the proportion of the coded source content that NVivo attributes to a given node, and is reported here descriptively rather than as a measure of individual CQ level. Although Cognitive CQ and Motivational CQ both recorded 91 coding references, they were generated from a different number of code nodes (75 and 79, respectively) and produced different coverage values (0.0809 and 0.0701), indicating that the matching reference count reflects a coincidence in the volume of coded material rather than an identical analytical structure.

Table 2. NVivo Coding Distribution by CQ Dimension

CQ Dimension	Code Nodes	Coding References	Indicative Coverage	Dominant Empirical Pattern
Metacognitive CQ	72	104	0.1156	Adaptive communication planning, structured information preparation, technical/regulatory preparation, process-aware coordination, assumption checking, and evidence-based reflection.
Cognitive CQ	75	91	0.0809	Experiential and technical learning, cultural knowledge, regional

CQ Dimension	Code Nodes	Coding References	Indicative Coverage	Dominant Empirical Pattern
				administrative learning, documentation awareness, organisational process knowledge, and stakeholder/regional knowledge.
Motivational CQ	79	91	0.0701	Cross-cultural initiative, curiosity and interest, persistence, professional responsibility, learning orientation, proactive engagement, and solution-oriented motivation.
Behavioural CQ	102	120	0.1075	Time-zone adaptation, audience-sensitive communication, evidence-based feedback, digital/virtual coordination, structured technical communication, professional conduct, and relationship-sensitive communication.

Table 3. Summary of Cultural Intelligence Implementation

CQ Dimension	Main Workplace Manifestation	Interpretive Finding
Metacognitive CQ	Preparation, monitoring, reflection, assumption checking, contextual adjustment	CQ is enacted through anticipatory and reflective control of cross-cultural interaction.
Cognitive CQ	Working styles, organizational processes, hierarchy, technical standards, regulations, documentation	Cultural knowledge extends into organizational, technical, regulatory, and professional context.
Motivational CQ	Learning orientation, willingness, persistence, professional responsibility, continued engagement	Motivation is expressed as context-dependent engagement rather than uniform enthusiasm for international assignments.
Behavioural CQ	Adaptive language, tone, formality, detail, feedback, documentation, meetings, timing	Behavioural adaptation makes CQ most directly observable while preserving professional standards.

Metacognitive CQ: strategic preparation and reflection

Metacognitive CQ was evident in the way participants prepared for cross-cultural interactions, monitored communication, reflected on previous exchanges, and reconsidered assumptions. Preparation extended beyond technical content. Engineering participants commonly reviewed drawings, calculations, standards, schedules, risks, deliverables, project status, and previous comments. Supporting-function participants prepared documentation, working-day information, public holidays, approval workflows, regulations, financial information, and administrative requirements.

INF-01 differentiated preparation according to interaction context, placing greater emphasis on technical detail for India and on project impact, schedules, risks, and stakeholder expectations for KSA. INF-02 similarly reviewed agendas, drawings, previous calculations, comments, and technical issues before meetings with managers, lead engineers, and clients. INF-05 prepared for administrative coordination by checking time zones, public holidays, document

formats, supporting documents, and approval workflows. These practices show that preparation reduced uncertainty by anticipating what information would be required, who would make decisions, and how to structure communication.

Metacognitive CQ also appeared after interaction. INF-03, INF-04, INF-07, INF-08, and INF-09 described reviewing unclear requirements or communication outcomes and modifying subsequent approaches. Participants adjusted the amount of technical detail, clarified information earlier, changed meeting preparation, or revised the structure of explanations. This iterative pattern aligns with metacognitive CQ as planning, monitoring, and regulating cultural assumptions (Ang et al., 2007; Van Dyne et al., 2012).

The key finding is that metacognitive CQ functioned as a cycle rather than a one-time preparation activity: employees prepared, monitored, reflected, and then used previous experience to improve later interaction. This extends the practical interpretation of metacognitive CQ to engineering work, where reflection is closely connected to project coordination and managing uncertainty.

Cognitive CQ: experiential contextual knowledge

Cognitive CQ was reflected in participants' knowledge of working styles, organizational processes, hierarchy, decision-making, technical standards, regulations, documentation, and stakeholder expectations. Importantly, cognitive CQ in this setting extended beyond knowledge of national customs. Participants developed knowledge of how organizational systems and professional requirements operated in different interaction contexts.

India-related interaction was frequently associated with detailed technical discussion, structured procedures, standards, documentation, and review. KSA-related interaction was more frequently associated with formal communication, authority, approval, contractual requirements, compliance, schedules, and project outcomes. Malaysia and Thailand were not treated as a single ASEAN pattern; participants reported different coordination requirements, reinforcing the importance of country- and task-specific contextual knowledge.

INF-03 demonstrated knowledge of KSA project organization, documentation processes, approval procedures, and international standards. INF-05 and INF-07 demonstrated knowledge of regional administrative practices, working days, public holidays, taxation, governance requirements, and approval structures. Participants also reported learning through colleagues, previous projects, SOPs, technical references, and practical exposure. Thus, cognitive CQ was frequently experiential rather than acquired through formal cultural training alone.

This finding is consistent with the multidimensional view of CQ, in which cultural knowledge provides a foundation for interpreting and responding to culturally influenced behaviour (Thomas et al., 2008). In the engineering setting, however, the relevant 'cultural knowledge' includes organizational and professional systems that shape how technical work is coordinated. Cognitive CQ can therefore be understood here as experiential contextual knowledge.

Motivational CQ: context-dependent engagement

Motivational CQ appeared through willingness to collaborate, learning orientation, professional responsibility, persistence, confidence, and interest in international exposure. Several participants viewed international interaction as an opportunity to broaden technical knowledge, communication skills, professional experience, and international perspectives. INF-01 associated multicultural interaction with learning and expressed willingness to pursue multicultural assignments, while INF-02 linked international projects with professional development.

Motivation was also visible during difficulty. INF-02 remained solution-oriented during stressful project situations and focused on safety, cost, and schedule. Other participants continued to clarify requirements and maintain professional relationships despite communication difficulties or different expectations. This indicates that motivational CQ is not limited to enthusiasm; it also includes persistence when cross-cultural interaction becomes demanding.

At the same time, motivation was not uniform. INF-03 demonstrated professional responsibility and persistence but comparatively limited proactive pursuit of international assignments. This contrasting evidence is important because it prevents motivational CQ from being equated with a general desire for expatriation or international mobility. In this case, motivation may be expressed through curiosity, learning, persistence, responsibility, or willingness to continue collaboration.

The finding supports the view that motivational CQ concerns the direction of attention and energy toward culturally diverse situations (Van Dyne et al., 2012). In the present context, that energy is often anchored in professional goals: solving project problems, maintaining stakeholder trust, meeting responsibilities, and learning from international work.

Behavioural CQ: observable adaptive communication

Behavioural CQ was the most visible dimension in the interview corpus because it appeared through concrete adjustments in language, tone, formality, level of detail, documentation, meeting practices, feedback, scheduling, and stakeholder coordination. Participants generally maintained technical and professional requirements while changing how those requirements were communicated.

INF-01 described using more detailed and data-based technical explanations with India-related teams, more outcome-oriented communication with KSA teams, and a more collaborative approach with ASEAN teams. INF-08 similarly described more technical and data-driven communication for India, more concise and decision-focused communication for KSA, and more collaborative communication in other regional interactions. INF-03 described adapting presentation structure, document detail, professional titles, meeting etiquette, and terminology when working with KSA stakeholders.

Behavioural CQ was also visible in disagreement management. Engineering participants tended to support disagreement with technical data, standards, calculations, and project requirements, whereas HR, finance, and administrative participants relied more on policies, regulations, procedures, documentation, and timelines. Adaptation therefore did not mean avoiding disagreement; it meant communicating disagreement in a form that preserved professionalism and supported problem-solving.

Virtual work created additional behavioural demands. Participants described adjusting meeting times, circulating documents in advance, using overlapping working hours, and providing written follow-up. INF-05 reported changes in email wording, information structure, document-sharing timing, follow-up, and scheduling. These practices show that behavioural CQ in multinational engineering work extends beyond face-to-face etiquette into document-based and digital coordination.

The finding is consistent with the behavioural component of CQ as the capability to adjust verbal and non-verbal behaviour in culturally diverse situations (Ang et al., 2007). In this study, the adaptation was purposeful: employees sought clarity, credibility, efficiency, and trust without abandoning technical accuracy or organizational accountability.

Cross-context comparison

The comparison treats Unit A (Headquarters), Unit B (Middle East Operations), Malaysia, and Thailand as embedded interaction contexts within one organizational case rather than as fixed national-cultural categories. Across all contexts, participants emphasized clarity, preparation, professional respect, adaptability, and effective coordination. However, the practical demands and most visible CQ dimensions differed.

Unit A (Headquarters) was most frequently associated with detailed technical information, standards, procedures, documentation, and structured review. Cognitive and Metacognitive CQ were therefore particularly visible, supported by Behavioural CQ through detailed technical presentation and evidence-based communication.

Unit B (Middle East Operations) showed a stronger emphasis on formality, authority, approval, contractual requirements, compliance, schedules, responsiveness, and project outcomes. Behavioural CQ was especially visible through formal and respectful communication, structured documentation, concise information, and sensitivity to stakeholder position, while Cognitive and Metacognitive CQ supported understanding and preparation.

Malaysia was described in the available evidence as relatively direct, efficient, pragmatic, organized, and professional. Adaptation centered on clear, efficient, and flexible coordination. Thailand was represented more cautiously; participants described both straightforward task-oriented interaction and situations requiring greater attention to indirectness, relationships, respectful explanation, and clarification. The evidence therefore does not support treating ASEAN as homogeneous.

The comparison reinforces a central theoretical interpretation: the same employee may activate different CQ dimensions depending on the stakeholder, task, organizational position, project stage, and communication channel. This supports a situational interpretation of CQ and is consistent with research emphasizing the contextual nature of intercultural effectiveness (Ott & Michailova, 2018; Semenov & Randrianasolo, 2024).

Table 4. Cross-Cultural Interaction Contexts

Context	Typical Interaction	Most Evident CQ	Typical Adaptation
Unit A (Headquarters)	Technical coordination, governance, design review, standards, documentation, approval	Cognitive + Metacognitive	Detailed preparation, technical evidence, standards, structured documentation
Unit B (Middle East Operations)	Client/project coordination, review, contractual requirements, compliance, schedules	Behavioural + Cognitive/ Metacognitive	Formal, respectful, concise, structured, outcome-focused communication
Malaysia	Regional/project coordination and operational collaboration	Cognitive + Behavioural	Clear, efficient, pragmatic, flexible communication
Thailand	Regional/project coordination, technical discussion, local constraints	Cognitive + Behavioural	Clear explanation, respectful communication, contextual flexibility and clarification

Factors influencing CQ implementation

The findings indicate that CQ implementation was shaped by professional role, academic background, professional experience, organizational tenure, international exposure, and

interaction scope. These factors did not determine a fixed level of CQ; instead, they influenced the situations in which CQ became visible and the form of adaptation available to employees.

Professional role was particularly important. Engineering participants commonly enacted CQ through technical preparation, standards-based reasoning, design coordination, calculations, documentation, and technical communication. Project-management responsibilities involved broader stakeholder alignment, schedules, project progress, and boundary-spanning coordination. HR, finance, and administrative participants enacted CQ through regulatory knowledge, documentation, policy interpretation, procedural consistency, and stakeholder management.

Professional experience and organizational tenure contributed different forms of contextual knowledge. Experience supported technical judgment, problem-solving, and confidence, while tenure supported familiarity with Company X's systems, stakeholders, procedures, and coordination mechanisms. INF-09 illustrates that strong CQ practice does not require long organizational tenure: the participant had relatively short tenure but substantial prior professional experience and rapidly developed contextual knowledge in a regional HR role.

International exposure also created repeated opportunities for experiential learning. Participants interacting regularly with India, KSA, Malaysia, and Thailand developed practical knowledge of communication, approvals, documentation, regulations, and project priorities. Interaction frequency itself was common across all nine participants and therefore could not be used as a differentiating grouping variable.

CQ as an integrated professional capability

The four dimensions were analytically distinct but practically interconnected. The integrated pattern identified in this study can be represented as Preparation → Contextual Understanding → Motivation → Behavioral Adaptation → Reflection → Further Adaptation. Employees may prepare information and anticipate stakeholder requirements, draw on contextual knowledge, remain motivated to resolve differences, adjust communication, and then use the outcome to improve future interactions.

This interpretation does not replace the established Four-Dimensional CQ framework. Rather, it shows how the dimensions can operate as a process within everyday professional work. Metacognitive CQ supports preparation and reflection; Cognitive CQ supplies contextual knowledge; Motivational CQ sustains engagement; and Behavioural CQ translates these processes into observable interaction. The finding is therefore one of practical integration rather than theoretical substitution.

The engineering/EPC context is important because cultural adaptation occurs alongside technical accountability. Cross-cultural interaction is connected to technical accuracy, quality, compliance, schedules, cost, safety, project delivery, and stakeholder expectations. Employees must adapt how information is communicated without compromising the professional standards that govern the work. Documentation, technical evidence, action tracking, and structured follow-up consequently become both professional and cross-cultural coordination mechanisms.

The theoretical contribution of these findings is not a revision of the Four-Dimensional CQ Model itself, but the addition of a professionally enacted, process-based layer to it: CQ dimensions that the model treats as individual capabilities are shown here to be triggered and sequenced by features of the professional task (technical accountability, documentation requirements, virtual coordination, and interaction context) rather than by cultural difference alone. This reframing suggests testable propositions for future research: (P1) the sequence Preparation → Contextual Understanding → Motivation → Behavioural Adaptation → Reflection is more strongly activated in professional roles with higher technical accountability

(e.g., engineering and project leadership) than in support roles; (P2) organizational tenure predicts CQ enactment less strongly than prior professional experience combined with interaction frequency; and (P3) the coupling between Behavioural CQ and documentation-based communication (rather than face-to-face etiquette) is stronger in virtual and engineering/EPC contexts than in co-located service contexts, where most prior CQ research has been conducted (Ochieng & Price, 2010).

Discussion: implications for International Human Resource Management

The findings position CQ as a capability that can be supported by organizational systems rather than solely as a fixed individual characteristic. This is important for IHRM because the study shows that employees develop CQ through repeated interaction, role-specific experience, mentoring, and organizational routines. Each of the recommendations below is linked directly to the informants and themes that evidenced it, rather than presented as a generic list of practices.

First, CQ development should be role-based, following the pattern observed across the nine informants: engineering employees (INF-01, INF-02, INF-03, INF-06, INF-08) enacted CQ mainly through adaptive technical communication, standards-based documentation, and disagreement management supported by technical data, while project leadership (INF-04, INF-08) required stakeholder alignment and cross-regional decision-making; HR, finance, and administrative employees (INF-05, INF-07, INF-09) enacted CQ mainly through regulatory knowledge, policy interpretation, documentation, and stakeholder communication. Role-based development should target these evidenced differences rather than applying a single generic CQ programme across all roles.

Second, cross-cultural onboarding for new or newly regional roles can draw on the experience of INF-09, whose relatively short organizational tenure did not prevent rapid development of contextual knowledge in a regional HR role because of substantial prior professional experience. This indicates that onboarding should focus on transferring contextual and procedural knowledge quickly, rather than assuming that CQ can only accumulate slowly through tenure.

Third, mentoring and experiential learning can formalize the transfer of knowledge already taking place informally between more and less experienced employees, such as between INF-04 (32 years of experience) or INF-08 (9 years of experience, Lead Engineering Manager) and less-tenured engineering colleagues (INF-01, INF-02, INF-03, INF-06). Structuring this transfer around real project situations, misunderstandings, and adaptation strategies would convert individual experience into organizational knowledge more systematically.

Fourth, leadership development can build on the boundary-spanning behaviour already demonstrated by senior informants such as INF-04 and INF-08, who managed stakeholder alignment and cross-regional decision-making across Unit A (Headquarters), Unit B (Middle East Operations), and ASEAN operations. Leaders who model adaptive communication and create psychologically safe conditions for discussing cultural differences are, more broadly, central to embedding CQ within organizational culture (Freking, 2025).

Finally, virtual collaboration guidelines can institutionalize the specific behaviours reported by INF-05 and INF-01: adjusting meeting times, circulating documents in advance, structuring email wording and information for clarity, using overlapping working hours, and providing written follow-up. These practices are consistent with evidence that CQ dimensions shape psychological safety, teamwork climate, and conflict frequency in global virtual teams (Baker, 2025; Davaei et al., 2022, 2025), reinforcing that CQ is continuously enacted through professional routines rather than developed only through formal cultural training.

CONCLUSION

This study examined how Cultural Intelligence (CQ) is implemented in everyday cross-cultural work within a multinational engineering organization, guided by four research questions. In response to RQ1, the findings demonstrate evidence of all four CQ dimensions. Metacognitive CQ was enacted through preparation, monitoring, reflection, assumption checking, and contextual adjustment. Cognitive CQ involved cultural, organizational, technical, regulatory, and professional knowledge. Motivational CQ was expressed through learning orientation, willingness, persistence, and professional responsibility. Behavioural CQ was manifested through adaptive communication, formality, feedback, documentation, meeting practices, virtual coordination, and stakeholder management.

In response to RQ2, different interaction contexts activated different combinations of CQ dimensions. Unit A (Headquarters) was more strongly associated with detailed technical and procedural interaction; Unit B (Middle East Operations) with formality, authority, approval, compliance, and outcomes; Malaysia with relatively direct and pragmatic regional coordination; and Thailand with the need for context-sensitive communication and clarification. These patterns represent participant experiences within Company X and should not be generalized as fixed national characteristics.

In response to RQ3, professional role, professional experience, organizational tenure, international exposure, and interaction scope shaped how CQ became visible in practice, without determining a fixed level of CQ. Engineering employees enacted CQ mainly through technical preparation and standards-based communication, whereas HR, finance, and administrative employees enacted CQ mainly through regulatory knowledge, documentation, and stakeholder coordination. INF-09 illustrates that strong CQ practice does not require long organizational tenure: substantial prior professional experience allowed rapid development of contextual knowledge despite comparatively short tenure at Company X.

In response to RQ4, CQ supported cross-cultural collaboration by helping employees interpret contextual differences, sustain engagement, and adapt communication without compromising professional standards. The study identifies an integrated pattern in which employees prepare, understand the context, remain motivated, adapt their behaviour, and reflect on the interaction, showing how the four CQ dimensions can operate together within everyday multinational engineering work.

Overall, the findings enrich the CQ perspective by showing how the established four-dimensional framework can be observed inside ordinary professional activities. In this engineering context, CQ does not replace technical competence; it shapes how technical and organizational competence is prepared, interpreted, communicated, coordinated, and adapted across cultural boundaries. The study therefore supports understanding CQ as a professionally enacted capability; the corresponding practical implications for IHRM are consolidated in the Results and Discussion section above rather than repeated here.

Limitations

The study is bounded by a single multinational engineering/EPC organization and nine participants, so transfer to other industries or organizations should be made cautiously. The evidence base is entirely interview-based; no independent observation or document evidence was used to corroborate the findings. The qualitative design does not measure CQ quantitatively or establish causal effects on project or organizational performance. Finally, the evidence for Malaysia and Thailand is more limited than the evidence for Unit A (Headquarters) and Unit B (Middle East Operations), so future research should examine these contexts more extensively.

Research Implications

Theoretically, the study provides contextual qualitative evidence that preserves the Four-Dimensional CQ Model while demonstrating its practical interconnection in engineering work. It extends the application of CQ beyond expatriate and service settings toward multinational engineering/EPC coordination. Practically, the findings suggest that IHRM systems should create repeated opportunities to prepare, learn, engage, adapt, and reflect. Future studies can test whether these qualitative patterns are associated with measurable outcomes such as communication quality, coordination efficiency, stakeholder satisfaction, schedule adherence, or project performance, and can compare multiple engineering organizations or use mixed and longitudinal designs.

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