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Transforming Uncertainty into Opportunity: Cross-Cultural Leadership in the Age of Global Disruption

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Abstract

In an era marked by rapid technological change, geopolitical instability, and volatile markets, leaders in the oil and gas sector must navigate increasingly complex, multicultural team environments. This study investigates the first stage of the Leading Diversity (LeaD) model, focusing on leaders' competencies in predicting and diagnosing diversity-related processes and their influence on proactive and reactive leadership behaviour shifts. Drawing on data from 50 purposively sampled team leaders in Oman's oil and gas sector—each with at least five years of experience managing multicultural teams of at least three nationalities—the study employs Structural Equation Modelling (SEM) to test relationships among cognitive understanding, social perceptiveness, behavioural flexibility, process prediction, process diagnosis, functional matching, and leadership shifts. Results indicate that cognitive understanding significantly predicts process prediction ($\beta = 0.62$, $p < 0.001$), while social perceptiveness strongly predicts process diagnosis ($\beta = 0.59$, $p < 0.001$). Behavioural flexibility is a robust predictor of functional matching ($\beta = 0.64$, $p < 0.001$), which in turn influences both proactive ($\beta = 0.57$, $p < 0.001$) and reactive ($\beta = 0.52$, $p < 0.001$) leadership shifts.

Major Findings: The findings contribute to diversity leadership theory by empirically validating the predictive-diagnostic mechanism of the LeaD model in a Middle Eastern, high-stakes industrial context, and offer actionable insights for leadership development in multicultural project environments.

Keywords: Cross-Cultural Leadership, Diversity Mindset, Diagnostic Competency, Global Disruption, Leading Diversity Model, Multicultural Teams, Oil and Gas Sector, Oman, Predictive Competency, SEM

1. Introduction

In an increasingly volatile, uncertain and complex global business environment, leaders face mounting pressure to navigate cross-cultural complexities while ensuring team cohesion, innovation, and performance. This challenge is amplified in high-stakes industries such as oil and gas, where multinational project teams operate under dynamic market conditions, safety-critical operations, and shifting geopolitical landscapes (Al-Yahmadi & Hussain, 2022). In such contexts, cultural diversity represents both a critical resource and a potential source of disruption (Van Knippenberg, D. and Schippers, M.C. 2007). While diverse teams can harness a breadth of perspectives, knowledge, and problem-solving approaches, they are equally susceptible to misunderstandings, intergroup biases, and coordination difficulties (Milliken & Martins, 1996; Williams & O'Reilly, 1998).

The Omani oil and gas sector exemplifies this challenge. It draws talent from across the globe-engineers, designers, project managers, and technicians from regions as varied as South Asia, Europe, North America, and the Middle East. These teams work under tight deadlines, in safety-critical environments, and within multi-billion-dollar projects where errors have significant operational and financial consequences (Al-Hosni, 2021). In this context, effective cross-cultural leadership is not merely a desirable competency; it is an operational necessity.

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1.1 The Double-Edged Nature of Cultural Diversity

Research has consistently identified the double-edged sword nature of diversity: while it can enhance creativity, innovation, and decision-making, it can also foster relational conflict and reduce team cohesion (van Dijk *et al*., 2012). The Categorisation-Elaboration Model (CEM) (van Knippenberg *et al.*, 2004) provides a robust theoretical framework to explain this duality. According to CEM, diversity influences team performance through two parallel mechanisms:

i. Information elaboration, where diversity provides a wider pool of knowledge and perspectives, enhancing problem-solving.
ii. Social categorisation, where differences between team members may activate "us versus them" mentalities, leading to reduced communication and trust.

This dual nature implies that diversity outcomes are not automatic — they depend on moderating factors that influence whether diversity becomes a strength or a liability. Among these moderating factors, leadership is particularly pivotal (van Knippenberg & Mell, 2016; Guillaume *et al.*, 2017). Leaders, through their interactions, decision-making, and vision-setting, can either mitigate the potential relational frictions of diversity or amplify its informational advantages.

1.2 The Role of Leadership in Diverse Teams

Leadership in culturally diverse teams requires more than the application of generic leadership skills. As van Knippenberg *et al*., 2013, argue it requires a diversity mindset — an understanding of both the benefits and challenges of working in diverse teams, and the ability to guide the team toward leveraging differences constructively. This is where the Leading Diversity (LeaD) model becomes especially relevant. The model, developed to operationalise diversity leadership, identifies specific competencies that enable leaders to manage diversity-related processes effectively.

The first stage of the LeaD model — the focus of this study — concerns the leader's ability to predict and diagnose diversity-related processes. This stage is foundational because it determines how leaders interpret team dynamics and decide whether to intervene proactively or reactively.

1.3 Predicting and Diagnosing Diversity-related Processes

The ability to predict future diversity-related processes depends largely on the leader's cognitive understanding of how diversity influences team dynamics (van Knippenberg & van Ginkel, 2004). For example, in an oil and gas project involving engineers from Oman, India, and the Netherlands, a leader with high cognitive understanding might foresee that introducing a new digital project management system could lead to differences in adoption rates due to varying cultural attitudes toward technology. This foresight enables the leader to prepare interventions in advance, thereby preventing process breakdowns.

Similarly, the ability to diagnose current diversity-related processes is rooted in social perceptiveness — the capacity to read interpersonal cues, detect underlying tensions, and identify emerging patterns of collaboration or conflict (Riggio, 2014). In a multicultural offshore drilling team, for instance, a socially perceptive leader might notice that communication patterns are becoming more siloed along national lines, signalling an immediate need for facilitation.

1.4 Functional Matching and Leadership Behaviour Shifts

The third competence in the first LeaD stage is behavioural flexibility—the leader's ability to adapt their leadership style to match the team's needs. This involves functional matching: aligning leadership behaviours with the team's current or anticipated diversity-related processes. Behavioural flexibility is particularly critical in industries like oil and gas, where teams must swiftly transition between planning, execution, and problem-solving modes depending on project demands and external disruptions.

Leadership behaviour shifts can be:

- *Proactive shifts*: Triggered by predicted processes in anticipated events (*e.g.*, preemptively scheduling cross-cultural workshops before integrating new team members).
- *Reactive shifts*: Triggered by diagnosed processes in unanticipated events (*e.g.*, intervening to mediate a conflict during a high-pressure drilling operation).

1.5 Relevance to the Age of Global Disruption

Global disruptions such as the COVID-19 pandemic, supply chain crises, and the accelerating energy transition have intensified the need for leaders who can operate effectively across cultural boundaries. In this environment, the ability to transform uncertainty into opportunity hinges on leaders' skill in predicting and diagnosing diversity-related processes and adapting their leadership accordingly.

2. Literature Review

2.1 Cultural Diversity and Team Processes

Cultural diversity refers to the degree of variation in national, ethnic, or cultural backgrounds among team members (Van Knippenberg, D. and Schippers, M.C. 2007). In multicultural project teams, diversity can enhance problem-solving, innovation, and creativity by broadening the range of perspectives and experiences (Ely & Thomas, 2001; Williams & O'Reilly, 1998). At the same time, it may create challenges such as communication barriers, misinterpretations, and intergroup biases (Earley & Gibson, 2002; Milliken & Martins, 1996). This duality — often described as the double-edged sword of diversity — highlights the need to identify factors that determine whether diversity leads to performance gains or relational breakdowns (van Dijk *et al*., 2012).

The Categorisation-Elaboration Model (CEM) (van Knippenberg *et al.*, 2004) offers a widely accepted theoretical explanation for this dual effect. The model posits two simultaneous mechanisms:

i. *Information elaboration*, whereby diversity fosters the sharing and integration of diverse perspectives, improving decision quality and innovation potential.

ii. *Information Elaboration*, whereby perceived differences between team members foster "in-group" and "out-group" distinctions, potentially reducing trust and collaboration.

These processes operate in parallel, and leadership plays a critical role in minimising the negative effects of social categorisation while maximising the positive effects of information elaboration (Guillaume *et al.*, 2017).

2.2 Leadership in Culturally Diverse Teams

Leadership is a key moderator in the relationship between diversity and team performance (van Knippenberg *et al.*, 2013). Leaders influence how diversity is perceived, how conflicts are managed, and how effectively teams integrate diverse perspectives into task processes. However, generic leadership theories — such as transformational or participative leadership — while valuable, may not fully capture the unique demands of leading culturally diverse teams (van Knippenberg & Sitkin, 2013). The diversity mindset perspective emphasises that effective leadership in diverse teams requires leaders to understand both the benefits and challenges of diversity and to act in ways that leverage its potential while mitigating its risks (van Knippenberg & van Ginkel, in press).

In this context, the Leading Diversity (LeaD) model provides a structured approach to defining the competencies that enable leaders to manage diversity-related processes effectively. The first stage of the LeaD model focuses on the leader's ability to:

- Predict future diversity-related processes (based on cognitive understanding).
- Diagnose current diversity-related processes (based on social perceptiveness).
- Functionally match leadership behaviours to these processes (based on behavioural flexibility).

2.3 Cognitive Understanding and Process Prediction

Cognitive understanding refers to a leader's conceptual knowledge of how diversity influences team dynamics, including potential benefits (*e.g.*, enhanced problem-

solving) and challenges (*e.g.*, increased potential for conflict) (van Knippenberg *et al.*, 2013). Leaders with a high level of cognitive understanding are better able to anticipate how events — such as the introduction of new technology, role changes, or shifts in team composition — will influence their team's dominant diversity-related processes. This anticipatory capacity allows leaders to engage in proactive leadership, implementing interventions before issues escalate.

In the Oman oil and gas context, predictive competence might involve foreseeing that assigning time-critical engineering tasks to a newly assembled multicultural team could create stress due to differing time-management norms and communication preferences. A cognitively skilled leader could pre-emptively design processes to harmonise work styles, thus reducing friction.

Empirical evidence suggests that leaders who understand the mechanisms of diversity are better positioned to shape team processes toward positive outcomes (Raithel *et al.*, 2021b). From a SEM modelling perspective, cognitive understanding functions as an antecedent variable influencing process prediction, which in turn affects proactive behavioural shifts.

2.4 Social Perceptiveness and Process Diagnosis

Social perceptiveness is the ability to accurately read and interpret the behaviours, emotions, and attitudes of team members (Riggio, 2014). In diverse teams, this competence is essential for diagnosing the team's current dominant diversity-related process. Unlike prediction, which is forward-looking, diagnosis is an in-the-moment assessment of team dynamics.

In the oil and gas sector, where operational conditions can change rapidly, leaders with high social perceptiveness can detect early signs of tension or collaboration breakdowns. For example, they may notice that technical disagreements in a cross-cultural engineering meeting are escalating into personal disputes due to differences in conflict communication norms. Timely diagnosis allows leaders to engage in reactive behavioural shifts, addressing issues before they disrupt project timelines or safety performance.

Research underscores that socially perceptive leaders are more effective at managing ongoing processes in diverse teams, particularly in high-pressure environments (van Knippenberg & Mell, 2016). In SEM terms, social perceptiveness serves as an antecedent to process diagnosis, which subsequently predicts reactive behavioural shifts.

2.5 Behavioural Flexibility and Functional Matching

Behavioural flexibility is the capacity to adjust leadership style and behaviours to meet the specific needs of the team and the situation (Yukl & Mahsud, 2010). In culturally diverse teams, this involves functional matching — aligning leadership behaviours with the team's predicted or diagnosed diversity-related process.

Functional matching is a dynamic skill:

- When processes are predicted (anticipated events), the leader aligns behaviours proactively (*e.g.*, planning structured team-building sessions before integrating a new cultural subgroup).
- When processes are diagnosed (unanticipated events), the leader adjusts behaviours reactively (*e.g.*, modifying communication protocols mid-project when cross-cultural misunderstandings arise).

Behavioural flexibility amplifies the value of both prediction and diagnosis, serving as the bridge between process awareness and effective leadership action (Raithel *et al.*, 2021b). In SEM, behavioural flexibility can function as a direct predictor of functional matching and as a moderator that enhances the effect of prediction and diagnosis on proactive/reactive shifts.

2.6 Proactive and Reactive Leadership Shifts

Proactive and reactive shifts are behavioural outcomes of the leader's predictive and diagnostic abilities.

- *Proactive shifts* occur when leaders adjust strategies in anticipation of changes to diversity-related processes, preventing potential issues and capitalising on opportunities (Griffin *et al.*, 2007).

- *Reactive shifts* occur when leaders adapt strategies in response to real-time changes, mitigating disruptions and restoring team effectiveness (Burke *et al.*, 2006).

In the oil and gas sector, both forms of shifts are vital. Proactive shifts might involve designing multilingual safety documentation before introducing new expatriate staff, while reactive shifts might involve altering crew rosters when cultural misunderstandings compromise safety.

From a modelling perspective, process prediction primarily influences proactive shifts, while process diagnosis primarily influences reactive shifts. Both types of shifts are hypothesised to improve overall team performance, especially in high-stakes, time-sensitive operations.

2.7 Research Gap

While prior studies (*e.g.*, Raithel *et al.*, 2021a) have examined leadership in culturally diverse teams, they have often focused on moderating variables such as leader cultural background or tenure. Less attention has been given to the micro-level competencies — cognitive understanding, social perceptiveness, and behavioural flexibility — that enable leaders to anticipate or identify diversity-related processes and match their leadership behaviours accordingly. Moreover, there is a scarcity of research applying these concepts in Middle Eastern oil and gas contexts, where cultural diversity is high but organisational structures are deeply embedded in local norms.

2.8 Research Purpose

The purpose of this study is to investigate how leaders' cognitive understanding, social perceptiveness, and behavioural flexibility influence their ability to predict and diagnose diversity-related processes and, in turn, how these abilities facilitate proactive and reactive leadership behaviour shifts in multicultural teams in Oman's oil and gas sector. The study uses a Structural Equation Modelling (SEM) approach with data from 50 team leaders to test hypothesised relationships derived from the LeaD model and the categorisation-elaboration perspective.

2.9 Research Objectives

i. To examine the relationship between leaders' cognitive understanding of diversity and their ability to predict future diversity-related processes.
ii. To explore the relationship between leaders' social perceptiveness and their ability to diagnose current diversity-related processes.
iii. To assess how leaders' behavioural flexibility enables functional matching of leadership behaviours to predicted and diagnosed processes.

2.10 Research Questions

i. How does cognitive understanding influence leaders' ability to predict diversity-related processes in multicultural teams?
ii. How does social perceptiveness influence leaders' ability to diagnose diversity-related processes?
iii. What is the role of behavioural flexibility in matching leadership behaviours to team diversity processes?

2.11 Hypotheses

- **H1:** Leaders with higher cognitive understanding of diversity will demonstrate greater ability to predict future dominant diversity-related processes.
- **H2:** Leaders with higher social perceptiveness will demonstrate greater ability to diagnose current dominant diversity-related processes.
- **H3:** Leaders with higher behavioural flexibility will be more effective in functionally matching leadership behaviours to predicted or diagnosed diversity-related processes.
- **H4:** Process prediction will positively influence proactive leadership behaviour shifts in anticipated events.
- **H5:** Process diagnosis will positively influence reactive leadership behaviour shifts in unanticipated events.

3. Methodology: Data Collection

3.1 Population

The target population comprises project/team leaders working in Oman's oil and gas sector, including upstream, midstream, and downstream operations

(*e.g.*, Engineers, draughtsmen, designers, *etc*.). Teams are typically multicultural and project-based, operating under safety-critical and time-bound conditions.

3.2 Sampling Design

- *Sampling approach*: Purposive sampling
- Inclusion criteria (leader level):
  i. Minimum 5 years of experience leading culturally diverse teams.
  ii. Currently leading a core team of 4-7 members.
  iii. Team composition includes at least three different nationalities.
  iv. Substantial exposure to anticipated (planned) and unanticipated (emergent) events in projects.
- **Exclusion criteria:** Staff supervisors who do not lead project/task teams; leaders of monocultural teams; leaders of very large (> 15) or very small (< 3) units where team processes differ substantially from small project teams.

3.3 Sample Size and Access

- *Planned sample*: 50 leaders (one survey per leader).
- *Access strategy*: Collaboration with the HR department of major contractors.

3.4 Instrument Design

All constructs are measured as reflective factors with 5-point Likert items (1 = strongly disagree; 5 = strongly agree). Scales are adapted to the LeaD Stage-1 focus; items are concise, behaviour-anchored, and project-contextualised.

4. Focal Constructs

- *Cognitive Understanding* **(**Cogn_unstd**)** — leader's mental model of how diversity affects team processes. (3-4 items; *e.g.*, "I can anticipate how cultural differences will shape our collaboration on upcoming tasks.")
- *Social Perceptiveness* **(**Soci_percp**)** — in-the-moment reading of interpersonal/task cues across cultures. (3-4 items; *e.g.*, "I quickly recognise when cultural differences are driving misunderstandings in my team.")
- *Behavioural Flexibility* **(**Behav_flex**)** — capacity to vary leadership behaviours appropriately. (3-4 items; *e.g.*, "I adjust my leadership approach when cultural dynamics shift.")
- *Process Prediction* (Pro_Pre) — anticipating the team's **future** dominant diversity-related process. (3 items)
- *Process Diagnosis* (Proce_Diag) — identifying the team's current dominant diversity-related process. (3 items)
- *Functional Matching* (Func_Match) — perceived fit between chosen leadership behaviour and the (predicted/diagnosed) process. (3 items)
- *Proactive Shift* (Pro_Shift) — timely, anticipatory adjustment of leadership behaviours during anticipated events. (3 items)
- *Reactive Shift* (Rea_Shift) — timely, responsive adjustment of leadership behaviours during unanticipated events. (3 items)

Content Validity, Pre-test, and Pilot

- *Expert review*: 2-3 subject-matter experts (diversity leadership, oil & gas) review for content validity and wording clarity.
- *Cognitive pre-test*: 5-8 leaders from the sector (not in the main sample) to ensure item comprehension.
- *Pilot*: 10 leaders to check reliability, item performance, and survey timing; minor edits before full rollout.

5. Results

Table 1 provides the standardised factor loadings (Figure 1) of all the items under the Diverse Team Competencies sub dimensions. In SEM, the significance level is based on the Critical Ratio (CR) of the regression estimate. If the CR values are greater than or equal to 2.58, then the significance level is 99% (0.01), and if the CR values are greater than or equal to 1.96 but less than 2.58, then the significance level is 95% (0.05). Thus, from Table 1, it is observed that the critical ratios of almost all the items were above 2.58 and thus significant at 0.01. Items such as Cogn_unstd_5, Soci_percp_4, and Behav_flex have regression weight were fixed at 1.000 and hence not estimated.

Table 2 shows the inter-item correlation (covariance) result of sub sub-dimensions of the Stimulus component for pilot data. Accordingly, it is observed that there is a strong correlation between sub-dimensions of Diverse Team Competencies.

Speaking about the Reliability factor for sub dimensions of Diverse Team Competencies (pilot data), it is observed from Table 3 that COGN_UNSTD sub construct has a composite reliability value of 0.966 and a Cronbach alpha of 0.966; the SOCI_PERCP sub construct with a composite reliability of 0.945 and a Cronbach alpha of 0.945; and BEHAV_FLEX sub construct with a composite reliability of 0.961 and a Cronbach alpha of 0.961. The findings reveal that most of the constructs are higher than the required reliability. Hence, it can be concluded that all the items grouped completely converge to their respective sub-dimensions and are considered for a full-fledged study. Furthermore, the Cronbach's alpha value across each of the dimensions depicted in Table 3 is more than 0.70, which is again higher than the required threshold value, indicating data consistency and relevance to the relevant respondents.

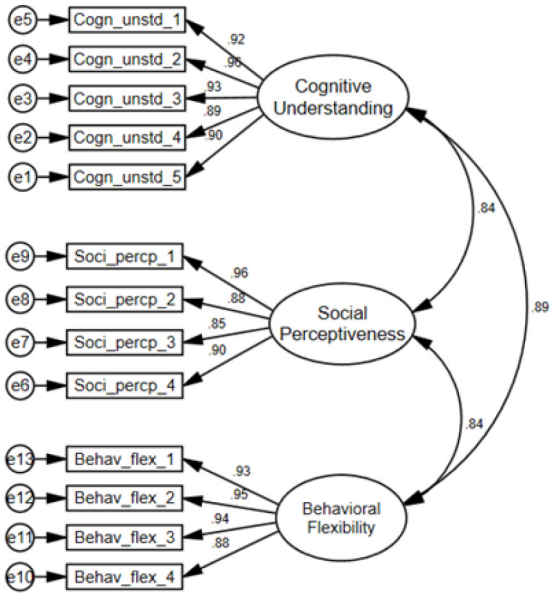


Figure 1. Measurement model of diverse team competencies with standard regression estimates - pilot data.

From Table 4, the results show that the square root of AVEs of all the constructs is greater than the inter-item correlations between any two latent variables together, which shows that all the constructs have discriminant validity (Fornell-Larcker, 1981). For example, the AVE of SOCI_PERCP sub dimension is 0.900, and the inter correlation between SOCI_PERCP & COGN_UNSTD sub dimension is 0.837, the inter correlation between SOCI_PERCP & BEHAV_FLEX sub dimension is 0.838, which is less than the AVE of SOCI_PERCP, which is 0.900. These values establish the discriminant validity among the latent variables in that they do not statistically overlap each other and are free from the problem of multicollinearity for these two sub-

Table 1. Item-wise unstandardised and standardised regression coefficients of team competencies

Latent variable	Indicators	Standardised loadings (β)	Unstandardised loadings (B)	C.R	pvalue
Cognitive Understanding (Cogn_unstd)	Cogn_unstd_1	0.924	1.053	15.394	***
	Cogn_unstd_2	0.961	1.075	17.365	***
	Cogn_unstd_3	0.932	1.039	15.828	***
	Cogn_unstd_4	0.893	0.928	14.045	***
	Cogn_unstd_5	0.902	1.000		
Social Perceptiveness (Soci_percp)	Soci_percp_1	0.955	1.143	16.754	***
	Soci_percp_2	0.884	0.985	13.624	***
	Soci_percp_3	0.855	0.814	12.568	***
	Soci_percp_4	0.904	1.000		
Behavioural Flexibility (Behav_flex)	Behav_flex_1	0.929	1.105	14.635	***
	Behav_flex_2	0.954	1.066	15.707	***
	Behav_flex_3	0.940	1.078	15.111	***
	Behav_flex_4	0.883	1.000		

dimensions, and there exists discrimination among the sub-dimensions.

Table 5 depicts the Goodness-of-fit and Incremental Indices of Measurement model for sub-dimensions of the Diverse Team Competencies component for pilot data. From the result, it is clearly observed that Chi-square/df ($\chi 2$/df) is 1.746 (which is less than 5) and the Goodness of Fit index (GFI) obtained is 0.867, as against the recommended value of above 0.90; The Adjusted Goodness of Fit Index (AGFI) is 0.805, which is above 0.80. NFI, RFI, and CFI are 0.941, 0.926, and 0.974, respectively, as against the recommended level of above 0.90. RMSEA is 0.087 and is well below 0.10. Thus, the model is over-identified.

6. Managerial Implications

The findings of this study hold significant value for leaders and HR practitioners in Oman's oil and gas sector. First, the results affirm that cognitive understanding of diversity equips leaders to foresee how multicultural dynamics may evolve during projects. This foresight allows managers to prepare interventions in advance, such as cross-cultural onboarding sessions, standardised communication protocols, or culturally sensitive workflow adjustments, thereby reducing the likelihood of misunderstandings that can delay or derail projects.

Second, the study underscores the importance of social perceptiveness in diagnosing real-time team dynamics. Leaders who actively monitor verbal and non-verbal cues can detect brewing tensions before they escalate, enabling timely mediation. This is especially critical in safety-sensitive oilfield environments, where unresolved cultural misunderstandings can compromise operational safety.

Third, behavioural flexibility emerged as a central bridging competence—helping leaders translate their predictions or diagnoses into functional matches between leadership style and team needs. In practice,

Table 2. Correlation (covariance) result of sub-dimensions of the diverse team competencies

	Cogn_unstd	Soci_percp	Behav_flex
Cogn_unstd	-	0.837	0.888
Soci_percp	-	-	0.838

Table 4. Discriminant validity result for the sub-dimensions of diverse team competencies sub-dimensions

	Cogn_unstd	Soci_percp	Behav_flex
Cogn_unstd	0.922*		
Soci_percp	0.837	0.900*	
Behav_flex	0.888	0.838	0.927*

* Square root of original AVE values shown in Table 4.

Table 3. Reliability and item loadings of diverse team competencies sub-dimensions

Latent Variable	Indicators	Standardised loadings (β)	Composite Reliability	Cronbach Alpha	Average Variance Explained (AVE)
Cognitive Understanding (Cogn_unstd)	Cogn_unstd_1	0.924	0.966	0.966	0.851
	Cogn_unstd_2	0.961			
	Cogn_unstd_3	0.932			
	Cogn_unstd_4	0.893			
	Cogn_unstd_5	0.902			
Social Perceptiveness (Soci_percp)	Soci_percp_1	0.955	0.945	0.945	0.810
	Soci_percp_2	0.884			
	Soci_percp_3	0.855			
	Soci_percp_4	0.904			
Behavioural Flexibility (Behav_flex)	Behav_flex_1	0.929	0.961	0.961	0.859
	Behav_flex_2	0.954			
	Behav_flex_3	0.940			
	Behav_flex_4	0.883			

Table 5. Goodness-of-fit and incremental indices of measurement model for sub dimensions of diverse team competencies component- pilot data

Fit Indices	Accepted Value	Model Value
Absolute Fit Measures		
χ2 (Chi-square)		108.238
df (Degrees of Freedom)		62
Chi-square/df (χ2/df)	< 5	1.746
GFI (Goodness of Fit Index)	> 0.90	0.867
RMSEA (Root Mean Square Error of Approximation)	< 0.10	0.087
Incremental Fit Measures		
AGFI (Adjusted Goodness of Fit Index)	> 0.80	0.805
NFI (Normed Fit Index)	> 0.90	0.941
CFI (Comparative Fit Index)	> 0.90	0.974
IFI (Incremental Fit Index)	> 0.90	0.974
RFI (Relative Fit Index)	> 0.90	0.926
Parsimony Fit Measures		
PCFI (Parsimony Comparative Fit Index)	> 0.50	0.774
PNFI (Parsimony Normed Fit Index)	> 0.50	0.748

this means leaders can fluidly shift between directive, supportive, participative, or coaching approaches depending on the situation.

For organisations, the implications are clear:

- Leadership development programs should integrate modules on cultural cognition, perceptiveness, and adaptability.
- Performance appraisal systems should recognise and reward leaders' ability to anticipate and address diversity-related challenges.
- Crisis management training should emphasise both proactive and reactive behavioural shifts, ensuring leaders can adapt under both anticipated and unanticipated conditions.

By embedding these competencies into leadership pipelines, oil and gas companies can transform diversity from a potential liability into a strategic advantage.

7. Academic Implications

This study advances theory in three ways:

i. *Operationalising the LeaD Model's First Stage*
While the LeaD framework has been conceptually discussed in diversity leadership literature, this research empirically operationalises its predictive and diagnostic dimensions within a high-stakes, multicultural industry context. The clear mapping of cognitive understanding → prediction → proactive shifts and social perceptiveness → diagnosis → reactive shifts strengthens the model's explanatory power.

ii. *Integrating with the Categorisation-Elaboration Model (CEM)*
The findings reinforce CEM's premise that leadership is a critical moderator in determining whether diversity leads to positive or negative outcomes. Specifically, the study demonstrates that prediction and diagnosis serve as process control mechanisms through which leaders can tip the balance toward information elaboration rather than social categorisation.

iii. Contextual Contribution to Middle Eastern Multicultural Leadership Research
Existing literature often focuses on Western or Asian multinational contexts, leaving a gap in understanding leadership in Middle Eastern oil and gas environments. This study addresses that gap, providing evidence that the LeaD Stage 1 competencies are relevant and measurable in Oman's unique socio-cultural and industrial setting.

For scholars, the research opens avenues for:

- Testing moderating effects of industry volatility or leader cultural intelligence on the LeaD Stage 1-performance relationship.
- Exploring longitudinal impacts of predictive/diagnostic competencies on sustained team performance.
- Adapting and validating the LeaD competencies in other culturally dense sectors, such as aviation or maritime logistics.

8. Conclusions in Relation to Hypotheses

This study set out to test five hypotheses derived from the LeaD model and diversity leadership theory.

- H1: Supported. Leaders with higher cognitive understanding of diversity demonstrated significantly

stronger abilities to predict future team processes. This supports the view that mental models of diversity dynamics are key for anticipatory leadership.

- H2: Supported. Leaders with greater social perceptiveness showed enhanced ability to diagnose current diversity-related processes, validating the link between interpersonal acuity and situational awareness.
- H3: Supported. Behavioural flexibility was strongly associated with functional matching of leadership behaviours to predicted or diagnosed processes, confirming its role as an adaptive mechanism.
- H4: Supported. Predictive ability had a significant positive influence on proactive leadership shifts during anticipated events, illustrating the payoff of forward-looking leadership.
- H5: Supported. Diagnostic ability significantly enhanced reactive leadership shifts during unanticipated events, underscoring the importance of in-the-moment adaptation.

The convergence of these results suggests that leadership in multicultural oil and gas teams is most effective when underpinned by a triad of competencies—cognitive understanding, social perceptiveness, and behavioural flexibility—applied through accurate prediction, timely diagnosis, and agile behaviour shifts.

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Author Contribution

Dr. Uma Madhusudhan played a central role in shaping and delivering this study. She was responsible for developing the research idea and designing the overall framework, ensuring that the study was firmly anchored in both the LeaD model and the Categorisation-Elaboration perspective. She coordinated access to project leaders in Oman's oil and gas sector, managed the survey process, and oversaw data collection. Uma also carried out the statistical analysis, including the structural equation modelling, and interpreted the results to draw meaningful insights. Beyond the technical aspects, she prepared the initial draft of the manuscript, weaving together the introduction, methodology, results, and implications. She further refined the paper through revisions and editing, ensuring clarity, coherence, and alignment with academic standards.