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The Underestimation of Cultural Risk in the Execution of Megaprojects

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***Abstract*—**There is a real danger that both practitioners and researchers considering risks associated with megaprojects ignore or underestimate the impacts of cultural risk. The paper investigates the potential impacts of a failure to achieve cultural unity between the principal actors executing a megaproject. The principle relationships include the relationships between the principle Contractors and the project stakeholders or the project stakeholders and their principle advisors, Western Consultants. This study confirms that cultural dissonance between these parties can delay or disrupt the megaproject execution and examines why cultural issues should be prioritized as a significant risk factor in megaproject delivery. This paper addresses the practical impacts and potential mitigation measures, which may reduce cultural dissonance for a megaproject's delivery. This information is retrieved from on-going case studies in live infrastructure megaprojects in Europe and the Middle East's GCC states, from Western Consultants' perspective. The collaborating researchers each have at least 30 years of construction experience and are engaged in architecture, project management and contracts management, dealing with megaprojects in Europe or the GCC. After examining the cultural interfaces they have observed during the execution of megaprojects, they conclude that globally, culture significantly influences their efficient delivery. The study finds that cultural risk is ever-present, where different nationalities co-manage megaprojects and that cultural conflict poses a real threat to the timely delivery of megaprojects. The study indicates that the higher the cultural distance between the principal actors, the more pronounced the risk, with the risk of cultural dissonance more prominent in GCC megaprojects. The findings support a more culturally aware and cohesive team approach and recommend cross-cultural training to mitigate the effects of cultural disparity.

***Keywords*—**Cultural risk underestimation, cultural distance, megaproject characteristics, megaproject execution.

I. Introduction

NATIONAL Culture is an intangible construct and is seldom considered when evaluating risks in the construction industry. These cultural risks can be significantly augmented when dealing with the construction of ‘megaprojects’. The authors of this research found that the potential for cultural risk to disrupt a megaproject is frequently underestimated.

Globally, the increasing size, scale and nature of megaprojects require greater co-operation levels between multiple nations. The actors are obliged to (temporarily) work together during the megaprojects delivery, but all too frequently different cultural beliefs and practices take time to adjust before a harmonious working body can be formed. This paper considers how vital an understanding of different cultural practices and beliefs is, for the delivery of megaprojects.

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II. Megaprojects and Their Risks

Megaprojects are often described as large-scale, complex ventures commonly associated with a cost of one billion US dollars or more [14]. In principle, they take many years to develop [26], carry high levels of risk [17], involve multiple public and private stakeholders [54], are transformational and impact millions of people [58]. They have been described as 'wild beasts' of the construction industry [76], owing to their unpredictable nature, and were once considered as 'privileged particles' of the development process [52]. The level of risk associated with megaprojects grows, as their outcome becomes ever more critical and more complex, as their scale expands [26], [27]. Financial risks are amongst the more easily identified megaproject risks, as megaprojects are frequently in the public eye, due to their vast size and expenditure, and their frequent use of public funds.

Financial exposures can be enormous, and a budget overrun on ventures such as the Panama Canal, Hong Kong's MTR or Dubai Airport, can lower the country's GDP [30]. Financial overspending has attracted and retained the public interest, with several megaprojects throughout the Globe, such as the UK's high-speed railway HS2, Mexico's cancelled airport or Ethiopia's new Dam, headlining popular press stories. The scale of megaprojects is increasing, as demonstrated by one recent Saudi Arabian project, NEOM, which is forecast to have a capital cost of $500 billion [32]. Such large ventures can exceed the entire GDP of countries such as Ireland or Greece [73].

Typically, megaprojects have multiple stakeholders such as funders, taxpayers or investors, and such stakeholders or their nominated representatives yield the power and conduct themselves in a manner which reflects their inherent beliefs and culture. Flyberg's research tends to dominate time and cost studies. It concentrates on megaproject cost overruns, and the practice of deceptive initial underestimating, misleading governments, taxpayers and investors stakeholders, although recent studies suggest there may be inaccuracies or errors in some of his calculations [29], [49].

Significant Megaproject Risks

References [17], [26], [54], [58] and [67] identify megaprojects as risk-filled ventures that can impact millions of people. In addition to much-publicized financial risks, megaprojects are prone to multiple influences during their execution, such as the temporariness of organization and

uniqueness of the construction in addition to social risks, stakeholder risks and cultural clashes [37], [26], [28], [40]. As megaproject risks come to light, they open the door for researchers to review the cause and effect of the risks on the project's execution, and after that, allow consideration of how to manage or mitigate these megaproject risks.

All too frequently, megaproject risks are ignored until they are too late to control. This paper discusses a lesser researched risk, namely, cultural risk.

III. Cultural Risk

Despite continued efforts to prefabricate construction elements, and despite COVID's restriction on face-to-face interactions, the construction industry remains heavily reliant on people, and therefore the interactions between its principal actors critical to the successful outcome for the megaproject.

Different regions adopt their unique style of building megaprojects, from the labour hungry middle and far east to less labour-intensive European megaprojects. National contractors have also proven more versatile and mobilise to traverse the World, such as Chinese contractors to states such as Montenegro, Africa, or the GCC. Similarly, Western construction management consultants such as Mace, Aecom, Parsons or Arcadis also apply their resources throughout the Globe to search for overseas revenue and market diversification. Megaproject teams are also becoming more international due to the participation of sponsors, funders and contractors from multiple countries [44] and these global collaborations now necessitate extensive cross-culture collaboration [21].

A few studies have recognised how culture-related dissonance has (negatively) impacted megaprojects to date (see for example [45], [69]-[71]). The researchers' combined on-site experiences provide tacit knowledge of the impacts of cultural dissonance globally, and these lived experiences have informed how cultural issues can significantly disrupt a megaproject a more considerable extent than understood to date.

It is not suggested that it is possible to achieve an 'instant' cultural harmony between the multicultural communities involved in delivering megaprojects. There are barriers in the relationship-building processes. Forming relationships is made more complicated as megaprojects are considered 'short-term' ventures, limiting the time needed to develop productive relationships [71]. Megaprojects are frequently one-off 'temporary endeavours', which due to their sheer size, speciality and duration, require specialist multinational parties to converge to execute their construction [13], [19], [67]. References [41], [54], [57] and [50] suggest that the 'higher degree of complexity' due to their vast size, temporary nature, control and bureaucratic issues are making collaboration 'critical, challenging and demanding' for these 'one-off indivisible structures under pressure' [50].

During this research collaboration, the cultural influences upon global megaprojects in different regions are compared. There are sizable differences in the volumes of megaprojects under construction, were recorded comparing. In 2018, 397 western consultancy agreements supported GCC megaprojects' execution, with construction costs estimated at $ 1,750 billion. GCC's reliance on expatriates ranges from 32% in Saudi Arabia to 80% in Qatar (2018). The GCC engages nine million personnel in its construction sector, almost twice the 4.8 million construction personnel participated throughout the European Union [63]. GCC investment in the construction industry sets it aside from the rest of the World. In monetary terms, GCC construction-related activities' value is 19% of GDP, twice the estimated 9% GDP for Europe [15].

Prior Research

Prior research has exposed case studies such as cultural clashes during the construction of megaprojects, such as the Panama Canal expansion, the OMEGA megaproject in France (a French high-speed rail system), Eclipse (a network associated management of large infrastructure projects in Europe) and Nabucco (a 1300 km pipeline through Turkey, Austria, Bulgaria, Romania, and Hungary). These studies concluded that that cultural dissonance between the megaprojects' key actors, significantly disrupted their performance. The studies reveal that cultural acceptance and trust are critical factors for the successful completion of megaprojects [59], [10], [62], [65], [70] express how cultural tensions amongst the management team are a significant risk that requires 'special consideration' and management throughout the lifecycle of the megaproject. Reference [52] found that cultural issues contribute to megaprojects' failure, while 'strongly recommending' that cultural risk is considered in all future megaprojects. Reference [68] shows different forms of cultural risks, including differences in 'national culture', 'organisational culture' or 'professional culture', make megaprojects a 'cultural phenomena'.

The researcher's observation and experience suggest that differences in commercial, professional and social-cultural norms in the management of megaprojects give rise to cultural dissonance. Dissonance describes a lack of agreement or harmony between people. Reference [39] describes the gap between cultures as 'cultural distance', suggesting that the higher the distance between the parties, the more probable that clashes and cultural dissonances will occur. The higher the cultural distance between two societies, the longer it seems to accept the local culture and norms [42], [72].

IV. Methodology - Case Studies

References [20] and [6] promote case studies for complex projects such as megaprojects, as they allow the investigator to retain 'the holistic and meaningful characteristics of real-life events', together with providing an ability to capture vibrant and complex data. Reference [74] supports the use of exploratory case studies to assist with understanding complex social phenomena. This research represents a global collaboration of findings, to overcome a perceived lack of transferable results from a single case study [74] and reduce the dangers of selection bias [5], [11]. A GCC case study explores the causes and impacts of cultural dissonance between Arab and Western actors, while a European case

study (Montenegro), helps understand some of the cultural tensions between Chinese and Western actors.

In both cases, the researchers engaged with less formal face to face semi-structured interviews to evaluate Western perspectives on their cultural interactions with local project sponsors, or contractors. In the GCC, 34 senior Western directors from a broad spectrum of construction fields were asked for their perceptions and provide 'rich data' [6] to evaluate the extent of cultural challenges they face in the GCC. In the European megaproject, a series of semi-structured interviews sought Contractor, Sponsor and Consultant perspectives to the extent and impact of cultural challenges they face, during the megaproject's execution.

V. Cultural Differences

The GCC study considers Western Consultants' interface managing the megaprojects delivery and Arab project stakeholders, for a significant infrastructure project, involving multiple consultants and Contractors, both local to the GCC and international – Korea, China, the Far East, and Europe. The findings informed of specific cases where cultural conflict causes an unrecoverable breakdown in trust, between the actors. The dissonance has resulted in the executives' termination from the megaproject and occasionally the GCC State itself[1]. While there were cultural differences and misunderstandings between the project sponsor and the Contractors, the case study focused on the relationship between the Western Consultants and the Arab project Stakeholder.

The European megaproject considers a highway construction project under FIDIC Yellow, a Chinese Contractor, a National Government, and a Western Consultant. The main problems related to the misunderstanding of the contractual requirements and the different cultural ways of megaproject execution. The European case study found that that the main issues giving rise to cultural dissonance were related to the misunderstanding of the Sponsors culture, practices, and conventions.

Europe vs. the Middle East

Traditionally, in most megaprojects in Europe, the Contractor, Consultant and Client are the leading actors, and whilst there are national cultural differences between them, the proximity of their cultural relationships, similar approaches and similar contract standards (Fédération Internationale Des Ingénieurs – Conseils (FIDIC), or something similar), creates a cohesive team dynamic. Due to these close cultural proximities, language and contract's intent and meaning create an atmosphere where the actors became familiar with the mechanics and dynamics of their roles and responsibilities in the megaproject's execution.

Now megaprojects in Europe are beginning to include Asian/Chinese companies, which add a cultural dimension to be considered. One of the early research findings is that the three main stakeholders to the contract, the Employer, Contractor and Consultant need to allow more time, especially in the early stages of the project for the Asian/Chinese Contractor to understand the contract specification and required documentation that needs to be submitted to the Employer.

Owing to a low indigenous population, the GCC has a high dependency on expatriates. The individual GCC States fund most of the Middle East's megaprojects, reducing the typically extensive collection of stakeholders which control European megaprojects (such as principle and secondary investors, banks, government agencies, often the government and the European Central committees, Environmental Protection Agencies, Contractors, the public and other relevant parties). Reference [35] suggests that the greater the number of multicultural stakeholders, the greater the levels of cultural risks, due to more interaction between a more comprehensive, more global set of actors.

Despite the uniqueness of global megaprojects, this joint research identified some of the more common grounds for cultural dissonance in European and GCC megaprojects. Such cultural disagreements were often related to the different cultural interpretation of contract requirements, cross-cultural communication issues, how different nations delegate authority, the introduction of novel construction techniques and the cultural perceptions of the importance of timely completion of projects.

Differing Interpretations of the Contract Requirements

- Different cultures interpret words and meanings in different fashions, but there needs to be an explicit agreement on the contract's language and which one takes precedent.
- Processes and procedures which may appear straight forward and standard in one region may be bureaucratic and cumbersome in others. For example, in the GCC, some believed they were 'imprisoned' by the bureaucracy, referring to excessive paperwork and procedures as a 'conveyor belt mentality'.
- In the GCC and Europe, Contractors from different cultures were perceived as more political or commercially aggressive than the local Contractors.

Communication Issues

- The use of more than one language can lead to long meetings and a need for translators. The native English speaker needs to be very clear in their use of words and explanations. It is very easy for nonnative English speaker to hear the words but misinterpret their meaning differently (with the added complexity that different native English speakers also have at times difficulty in understanding each other);
- Depending on the contractual languages, it might not be easy to find a competent translator who can translate adequately technical and contractual terms.
- In the GCC, some project directors also noted how Arab communication styles were sometimes different from

[1] Most GCC States require the expatriate to leave the State within 30 days of cessation of employment.

Western norms, explaining how they frequently communicate in differing pitched voices, may appear as arguing as opposed to their regular inter-cultural communication. Reference [53] finds that Arabs can be loud and emotionally expressive and may appear to be fighting when they speak loudly or move bodies expressively; however, this should be considered 'speaking with passion' and not a sign of disagreement. There are also communication issues where some items are not said, due to a wish to avoid confrontations.

Power and Authority

- Frustration arises where one person thinks that they are speaking to a decision-maker, but they are not talking to the real authority holder, as in some cultures, all the critical decisions are made from the top down. The person who has the title of Project Manager may not hold and 'real' power and may not be the person making the decision.
- Observing protocols for public communication: A severe cultural mistake would be to misjudge the consequences of embarrassing the Sponsor in public, leading to a loss of face. Is it a matter of 'degrees of sensitivity'. One of the easiest ways to cause someone to lose face is to 'insult an individual or criticise them in front of others' [33]. The Sponsor must be advised of any potential disagreement in private rather than publicly. In workplace meetings between the Western Consultants (WC) and Arab Sponsors, field research has shown that public disputes or public criticism may lead to a 'loss of face' and seen as an insult to the Arab Sponsor [33]. The Sponsor must be advised of any potential disagreement in private rather than publicly.
- In the European case study, it was found that critical decisions were 'recommended' by the project director to the powerbase in mainland China, where the decisions were subsequently made and passed back to the project

Different Methodologies and Approaches

- The research finds that an inability to realise that there can be more than one way to undertake a task, for example, the approach to design in China might be quite different to the approach in European Countries where on a Design and Build contract the Designer is in close contact with the Construction team, and the construction team can implement the design. This means that the design approved by the Client is in the main the one that is being constructed. In an Asian approach to design, the Designer is provided with a broad outline, and then the Construction team will modify to suit the ground condition. So the design approved by the Employer is not necessarily the one that is being built. This leads to a step of extensive and time-consuming design reviews which can have an impact on the time for completion.
- For WC, [22] suggests reviewing the countries' 'cultural mindset' and achieving progress before engagement by following a framework including 'understanding the type of culture and the differences with your own, respecting the differences and enriching yourself through the new'.

Different Prioritization of Time

- Different cultures appear to have different perspectives as to an understanding of the criticality of time.
- The executives also need to be mindful of the consultative nature of the Arabs [55]. This tendency to continually consult each other prompts them to seek advice and consensus before making decisions, resulting in higher perceived bureaucracy levels. In Arab cultures, it is found that the time taken to reach the decision is of lesser importance than the achievement of consensus on the decision.
- There are several professional and social conventions to be considered in the GCC [48], [56], [66]. Cross-cultural experts also warn of bureaucratic, professional procedures as 'nothing happens quickly', and 'trust is paramount' [55].
- Chinese Contractors were generally found to be more concerned with achieving programmes and deliverables.

VI. Impacts of Cultural Differences

If no impacts arise from cultural dissonance, then there are no risks posed to either party or no impact upon the megaproject's execution. The study finds that the real impact of cultural dissonance in the execution of megaprojects is that staff is often removed, to get the megaproject back on track. The study finds that megaproject directors in the GCC are more frequently removed than European megaprojects and the impacts are significant. The megaprojects suffer in crucial areas, delays, and project disruption, leading to high financial costs for the impacted parties and knowledge leakage.

- Delay, disruption & knowledge leakage: Most project directors reported critical impacts when the WC key staff are removed. Many cited a resultant delay to the completion of the megaproject. In addition to the time lost while the position is unfilled, [77] have found that replacement personnel needs time to adjust and reach the same productivity level as their predecessor. Project directors referred to the loss of knowledge associated with removing the critical staff resulting in significant disruption.
- Knowledge leakage: The project suffers as the knowledge gained from years working on a project is often lost. Loss of information results in delays as the project as the prior knowledge is rediscovered.

Cultural dissonance in the European megaprojects examined for this paper had resulted in delays to the megaprojects' execution but had not contributed to the removal of their senior executives or project directors. On the other hand, project directors on each of the GCC megaprojects considered in this study had witnessed a high churn rate for project directors involved in executing their megaprojects. While costs vary according to the specific megaproject, the costs tabled next are most relevant to GCC megaprojects.

- Costs to the displaced Director and site team: Project directors described how they felt reduced job security due

to high churn rates, and reported unquantifiable factors, such as personal upheaval; Unplanned repatriation can result in the return of children from education in the middle of a school term, housing penalties and the burden of repatriation costs. Reference [2] discusses other intangible impacts including a loss of self-confidence, self-esteem and reputation. Upheavals and disruption to the terminated project director, include an automatic closure of their bank account, and an immediate demand to repay any loans in full. Many project directors reported a significant drop in their team morale after colleagues are dismissed. The drop in morale was also reported to impact the removed individual,

- Consultancy practice costs: There are significant variances in assessing the costs incurred as a result of an expatriate's assignment failure. Reference [47] suggests costs of $150,000 per early repatriation, while studies by [12] suggest higher costs of $1,000,000, per manager[2]. The researcher considers that accurate costs are essential to appreciate the financial exposure and risk scale associated with expatriate failures. In this regard, the cost centres and charges identified in [77] (Table 10.1) are used as a benchmark for evaluating expatriate costs. These financial computations support findings of [12] that the WC incurs costs of up to $1,000,000, per project director, in GCC megaprojects.
- Megaproject Costs: Reference [27] has established that substantial costs are associated with the late delivery of megaprojects. Sponsors incur development losses, such as the loss of venue revenue, or as a government, the lack of benefit from roads and infrastructure, if projects are delivered late. GCC megaprojects are generally state-funded and may not be expected to provide a financial return on investment. The absence of income projections makes the quantification of delay damages challenging to assess.

VII. Risk Mitigations

The Project Management Institute defines risks as 'uncertain events or conditions that can have either a positive or negative effect, on one or more of the project's objectives' [34]. 'Successful risk management is positively correlated with project success, as when we discover in advance the things that might drive us off track, and we can implement proactive measures to avoid threats and capture opportunities' [36, p. 59]. This paper explores the impacts of cultural dissonance for WC in megaprojects and potential risk mitigation strategies. Although there are differences between GCC and European megaprojects, many of the proposed risk mitigations are similar and begin with identifying risk before considering how to best contain, transfer, avoid or mitigate the potential risks influences.

[2] This research considers senior project directors at the equivalent manager grade

Identification & Acceptance of Cultural Differences

A 'healthy dose of particularism' is sometimes recommended [66]. Cross-cultural commentators often use the adage 'when in Rome do as the Romans' [33].

Reference [48] finds that an individual's ability to integrate into a new culture is shaped by their attitude and 'openness to cultural diversity'. References [60] and [46] describe difficulties in accepting new cultures or the 'Other' or ethnocentricity. Reference [8] defines ethnocentricity as 'the relative preference for maintaining one's heritage culture and identity, excluding contact with other ethnocultural groups'. Social integration involves accepting social differences such as religion or cultural norms [39]. Professional integration commences when the parties gain professional respect and trust in each other. Reference [51] describes trust as the 'willingness of a party to be vulnerable to another party's actions based on relationships' [53]. Reference [2] found that trust and respect are two key concepts that 'must become ingrained for all expatriates' preparing to work in the UAE.

There are several professional and social conventions to be considered in the GCC [48], [56], [66], such as acceptance of an appropriate dress code Professional conventions. Matter of history and tradition to be respected includes punctuality, language and manners [41]. Cross-cultural experts also warn of bureaucratic, professional procedures as 'nothing happens quickly', and 'trust is paramount' [55].

Staff Selection

Reference [4] identifies that the team leader should be a project champion (or the senior executive in the WC case), entirely dedicated to the megaproject's successful execution. This executive should also be flexible in responding to emerging risks. Reference [43] identifies how leaders need to provide a co-operative environment, a healthy spirit of collaboration, demonstrate people management skills. Reference [16] suggests that the megaproject leadership should encourage broad participation and be highly visible. These research findings promote an almost invincible senior executive, perceived as a 'special breed' [64]. However, recruitment specialists advise that megaproject project directors look for the same 'high standard of values, ethics, and cultural fit' as other project directors, in similar roles. They identify a need for 'directors to learn the soft skills necessary to manage cultural differences'. This study finds that GCC senior project directors are replaced frequently. Those remaining in position suggest that the executive must acquire high bureaucracy and diplomacy levels, recognise and work with multiple cultures and personalities, and ensure their tenure.

Although team relationships are further complicated by temporariness and their short-term nature, the leader must create a sense of community and collaboration. In the GCC project, directors recommend that actors should be mindful of professional and social conventions to be considered [48], [53], [66], such as acceptance of an appropriate dress code, professional conventions. GCC norms need to be respected, including punctuality, language and manners [1], [3], [41].

Overall, the project leader is required to demonstrate strong business acumen, be well versed in the construction industry, and usually have the specific knowledge necessary for the appropriate type of megaproject. Reference [27] highlights how managers of megaprojects need exceptional piloting skills.

Culture Profiling as an Aid to Staff Selection

References [38], [61], [75] and many others provide professional recruitment advice for those wishing to engage with a new culture. They promote identifying these differences to reduce the participants' exposure to culture shock and make the cultural integration process more comfortable. Several software applications such as 'cultureme' or 'culture compass' offer online support to the prospective expatriate. In the GCC field research, project directors were asked to participate in a trial, and the results are analysed to gauge any potential benefits. Project directors were requested to complete the Hofstede cultural compass survey, and more than two-thirds participated. The completed tailor-made cultural analysis provided the project directors' details of cultural differences between their base and the GCC. It also identified how their results relate to most nationals in their country. The online survey took between 15 and 30 minutes to complete, and participants responded to 42 questions. Their report helps build a profile of how their behaviour may need to be tempered to integrate to GCC successfully. A computer programme then analyses the participants' reactions towards working relationships, preferred authoritarian styles, punctuality, change management, and customer orientation.

Training

Executives report the absence of cultural training or any form of preparation, in all megaprojects. The low level of cultural training delivery could allow or give rise to low cultural empathy, which may lead to conflict with the project sponsor representatives leading to the expat's dismissal.

Most mitigation measures suggest that focused cultural training reduces cultural risks. References [24] and [31] analysed why employers fail to support ICT training, including high cost, reduced returns, short timeframes or the absence of adequate trainers. GCC studies frequently advise on the benefits of ICT. For the GCC, these studies include research by [2], [43], or [7] as they continually advocate the benefits of cross-cultural training.

Changing Cultural Mindsets to Anticipate and Bridge Differences

Professional construction bodies are also attempting to highlight intercultural co-operation, such as the Royal Institute of Chartered Surveyors (RICS). In 2019, the RICS reviewed its entire 'pathways and competencies framework', which sets the minimum standards of expertise required to practice as a professional member, after consulting with 400 practising members, between 2016 and 2018. They assessed a clear desire, both from RICS and external stakeholder groups, to emphasise 'cross-cultural awareness in a global business' and 'diversity, inclusion and teamworking' competencies. Stakeholder groups studied and helped develop the competency standards they expect from RICS members, including 'diversity, inclusion and team working' and optional competencies in 'cross-cultural awareness in a global business'. Cross-cultural awareness is designed to recognise and appreciate global cultural differences. The RICS aims to provide global consistency and recognise differences in national culture and differing global business mindsets. The focus included

a) 'gaining an understanding and applying effective techniques in conducting business relationships on a global basis' and
b) 'understanding the key national cultural differentiators and use this understanding to achieve effective global project performance'.

The RICS now sets compulsory minimum levels of competency for its members, to integrate with a more global work base, through a competency requirement for 'Diversity, Inclusion and Teamworking'. Diversity, inclusion and teamworking competencies are designed to adapt to global culture. Acquiring the level of prescribed membership is seen as an indicator that the member of that profession is technically competent and, in a position, to provide the necessary advice for the megaproject's execution, under the Sponsors expectations.

Building a Multicultural Environment

Reference [25] identified multicultural challenges as one of the critical factors to achieve project success. Reference [64] highlights the need for the leader of such culturally diverse groups to integrate and unite teams, demonstrate personnel management skills and be good cross-cultural communicators. One of the most critical challenges associated with megaprojects' execution is the successful management of multicultural teams in the GCC. Reference [64] highlights the challenges GCC leaders face, in dealing with integrating and uniting these culturally diverse groups. These consultancy practices are formed from an extensive gathering of culturally diverse hired in experts from a pool of highly qualified resources from across the Globe [3], [18], [21]. Within the GCC, individual states' reliance on expatriates ranges from 32% in Saudi Arabia to 80% in Qatar, (December 2018). Reference [9] finds that cultural distance between the actors heightens cultural tensions, in what [75] describes as 'cultural soup'.

VIII. Conclusions

The study finds that cultural risks are significant during a megaproject's execution, where different cultures are expected to unite and construct challenging megaprojects, in the shortest possible periods. The cultural dissonance levels exposed in this research can underpin a risk management strategy to minimise its impact. All megaprojects are different; however, cultural risks are evident throughout megaprojects globally. Cultural approaches, such as China and Europe, may differ substantially, and cultural values differ, such as the Arab project Sponsor and Western Consultant in the Middle East

region. The case studies sought perspectives from a wide variety of nationalities, with a wide range of views. The constant analysis of these perspectives helps identify cultural dissonance, which correlates with the actors' distance. This dissonance often surfaces in public clashes, which impact the performance and success of the venture. Cross-cultural commentators often use the adage 'when in Rome do as the Romans' [23], [33], [53]. Reference [22] describes the need to appreciate and understand the new culture and the differences with your own.

The critical mitigation measures suggest the correct selection of project directors, and support training to break down the cultural barriers that give rise to cultural dissonance. Other recommended cultural considerations included all-party engagement, flexible and adaptable management procedures, and maintaining a professional approach [48]. The research has found that cultural risks are lessened by considering the other point of view, acting responsively, and focusing on developing and strengthening key relationships. Risk management also involves respecting the degree of formality, making procedures transparent and limiting (where possible) the influences of politics. The study finds that cultural awareness deserves a more significant consideration if megaprojects' execution is successful.

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