MODERATING ROLE OF SUPPORTIVE WORK ENVIRONMENT ON THE RELATIONSHIP BETWEEN INTELLECTUAL CAPITAL AND FIRM PERFORMANCE: A CASE OF CONSTRUCTION ORGANIZATIONS IN UAE

ADHAM JOUDI AL ARBID

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ADHAM JOUDI AL ARBID

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LIST OF ABBREVIATIONS

HC	Human Capital
PCI	Performance of Construction Industry
RBV	Resource based view
RC	Relational Capital
SPC	Spiritual Capital
SWE	Supportive Work Environment
UAE	United Arab Emirates
USM	Universiti Sains Malaysia

LIST OF APPENDICES

PERANAN PERSEKITARAN KERJA SOKONGAN SEBAGAI PENYEDERHANA TERHADAP HUBUNGAN ANTARA MODAL INTELEK DAN PRESTASI FIRMA: SATU KES FIRMA PEMBINAAN DI UAE

ABSTRAK

Industri pembinaan di UAE adalah penting untuk pembangunan ekonomi dan sosial, tetapi menghadapi cabaran yang menghalang peningkatan prestasi. Modal intelek memainkan peranan utama dalam menangani isu-isu ini dan meningkatkan hasil industri. Tujuan kajian ini adalah untuk mengkaji peranan komponen modal intelek dalam prestasi industri pembinaan di UAE. Selain itu, kajian ini juga meneroka peranan moderat tingkah laku sokongan kerja dalam hubungan antara komponen modal intelek dan prestasi industri pembinaan di wilayah yang serupa. Data utama dikumpulkan melalui soal selidik berstruktur, dan sampel sah sebanyak 408 responden dari industri pembinaan akhirnya dianalisis menggunakan teknik model pengukuran dan model struktur melalui Smart PLS. Semua ujian untuk penilaian model pengukuran dari segi kesahan dan kebolehpercayaan konstruk telah diterapkan. Selain itu, penemuan daripada pendekatan pemodelan persamaan struktur menunjukkan impak yang signifikan dan positif dari modal manusia, modal struktur, modal spiritual, dan modal hubungan terhadap prestasi industri pembinaan. Selain itu, terdapat kesan moderat yang signifikan dari persekitaran kerja sokongan terhadap hubungan antara komponen modal intelek yang dipilih dan dinamik prestasi dalam industri pembinaan di UAE. Penemuan kajian ini akan memberi manfaat kepada penggubal dasar, pengurus projek, pemilik, dan pemangku kepentingan lain dalam industri pembinaan UAE. Walau bagaimanapun, kajian ini mempunyai beberapa had, termasuk tumpuannya kepada analisis kuantitatif, sektor pembinaan, dan hanya empat

komponen modal intelek. Kajian masa depan harus menangani had ini untuk meningkatkan keterbukaan hasil dan menawarkan pandangan yang lebih komprehensif.

MODERATING ROLE OF SUPPORTIVE WORK ENVIRONMENT ON THE RELATIONSHIP BETWEEN INTELLECTUAL CAPITAL AND FIRM PERFORMANCE: A CASE OF CONSTRUCTION ORGANIZATIONS IN UAE

ABSTRACT

The UAE's construction industry is crucial for economic and social development, but it faces challenges that hinder performance improvement. Intellectual capital plays a key role in addressing these issues and enhancing industry outcomes. The aim of this study is to examine the role of intellectual capital components in the performance of the construction industry in the UAE. Moreover, this research also explores the moderating role of supportive work behavior on the relationship between intellectual capital components and the performance of the construction industry in a similar region. Primary data were collected through a structured questionnaire, and a valid sample of 408 respondents from the construction industry was finally analyzed using measurement model and structural model techniques through Smart PLS. All tests for measurement model assessment in terms of validity and reliability of the constructs have been applied. Furthermore, findings from the structural equation modeling approach suggest a significant and positive impact of human capital, structural capital, spiritual capital, and relational capital on the performance of the construction industry. Moreover, there is a significant and moderating effect of a supportive work environment on the relationship between selected components of intellectual capital and performance dynamics in the construction industry of the UAE. The findings of this study will be valuable to policymakers, project managers, owners, and other stakeholders in the UAE's

construction industry. However, the study has some limitations, including its focus on quantitative analysis, the construction sector, and only four components of intellectual capital. Future research should address these limitations to improve the generalizability of the results and offer more comprehensive insights.

CHAPTER 1

INTRODUCTION

1.1 Background of the Study

In a contemporary business environment, a remarkable level of rapid changes has been observed, specifically in the social, technological, economic, and financial infrastructure. These changes indicate a swift transformation across various aspects of the business world while reflecting a dynamic and evolving landscape because of changing market trends. Organizations are now working in complex business situations and changing market dynamics with a growing level of risk and uncertainties, changing how businesses operate (Behie et al., 2023). More specifically, the complex business environment can be determined through various factors like technological advancement, regulatory environment, global competition, and changing preferences of customers, respectively. Such complex situations can directly determine the success or failure of the organizations, so they need to be ready to adapt quickly to these complex challenges and the ever-changing nature of the business world.

In such an atmosphere, the significance of knowledge as a role player in achieving competitive advantage is vital. Therefore, knowledge is to be considered among the core organizational resources, which effectively helps the organization to work in a competitive environment (Omotayo, 2015). This indicates that possessing and effectively utilizing the knowledge can provide a distinct position to the organizations compared to their rivals in the industry. Consequently, organizations that are more equipped with changing market situations and open to learning can substantially foster innovations and proactively respond to the contemporary demands and needs of the customers.

More specifically, knowledge in any organization can be created through talent, learning, and experience. More specifically, in an organizational setting, talent is essential for creating knowledge as employees contribute their unique skills and expertise toward innovation, task performance, and problem-solving. On the other side, learning is a fundamental component in forming organizational knowledge because it enables individuals to keep abreast with technological advancement while collaborating with colleagues. Additionally, practical experience plays a significant role in shaping organizational knowledge as it exposes both challenges and opportunities from an applied perspective.

Organizations are advised to develop their skills and capabilities to adapt to market changes per customers and industry demands (Teece et al., 1997; Permatasari et al., 2023). A fundamental organizational source to achieve learning and capabilities is emphasizing employees as the core organizational resource (Albrecht et al., 2018). More attention is required towards human resource management in any organization to achieve higher growth in the industry and marketplace. Furthermore, it is also suggested that the organization should be capable of developing new products, ideas, and services in order to sustain itself for a more extended period. As expressed by Nonaka and Takeuchi (1995), knowledge is considered the most effective tool for observing the changes in the market. In this regard, it is observed that 18 percent of the performance variation is due to knowledge. Therefore, a lack of knowledge and experience are among the core reasons for the organization's failure (Awotoye & Singh, 2017; Matlay, 2005; Shepherd et al., 2000).

Similarly, the failure of SMEs in Malaysia is due to a lack of knowledge; hence, the significance of knowledge for the organization's success or failure cannot be neglected (Hanifa et al., 2017). Considering the regional context of UAE, it is found

that the government and private sector organizations have taken several initiatives to facilitate knowledge management practices. For example, the UAE economy stands out as a unique nation with a diverse level of government actively, which endorses several local initiatives to foster awareness regarding the strategic significance of KM in the country. More specifically, the Emirate of Dubai has emerged as a prominent incentive in advancing KM practices with the help of a range of distinctive undertakings. In this regard, one of the pivotal initiatives involves the establishment of various free zones like Knowledge Village, Media City, and Internet City, respectively. More specifically, these zones have been designed to attract foreign entities in the economy like the universities, training institutes, media organization, and ICTs along with the software development companies.

Moreover, the Dubai Knowledge Village has been established as potentially the world's sole free zone, joining universities, human resource management organizations, and other companies with the overarching objective of humanizing the region's talent pool while describing the UAE as a knowledge-based economy (Dubai Knowledge Park, 2024). During the year 2006, another noteworthy institutional development occurred through establishing the 'Knowledge and Human Development Authority' (KHDA) in Dubai, which is serving as a quality assurance authority (KHDA, 2024). It is further stated that KHDA undertakes the crucial role of overseeing the progress of education and human resource sectors within the country. This comprehensive approach underscores the UAE's promise towards promoting a culture of knowledge sharing and management.

Considering the construction industry in UAE, it is stated that construction projects unfold within knowledge-intensive backgrounds which are characterized by the interplay of connected systems and people (Alhammadi et al., 2022). For this

reason, the knowledge within the domain of construction projects often assumes the form of tacit knowledge, deeply rooted in individual experiences who are directly or indirectly linked with the several construction projects. This inherent nature of the tacit body of knowledge helps in heightening the complexity correlated with capturing and reusing several domains of knowledge (Alhammadi et al., 2022). More specifically, in the construction domain, organizations navigate this challenge by amalgamating the wealth of staff experience, encapsulated in tacit knowledge, with established standard procedures and processes designed to access explicit knowledge. Construction companies strategically craft robust industry profiles to showcase the quality of their work, prominently emphasizing the relevant experiences of their staff. This dynamic approach aims to bridge the gap between tacit and explicit knowledge, thereby contributing to the multifaceted knowledge landscape inherent in construction projects (Al Janabi, 2018).

Over the last couple of decades, the term knowledge has been defined by various researchers, which indicates that there is no single agreed definition of knowledge observed in the literature (Al-Emran et al., 2020; Ode & Ayavoo, 2020; Santoro et al., 2018). However, the term intangible is often used to express the title of knowledge (Stewart & Kirsch, 1991). In contrast, on the other side, titles like capital are the resources the organization is utilizing to create some value, as expressed by Dean and Kretschmer (2007). In this regard, the term knowledge refers to intellectual capital in an organization,, which may be treated either as a resource or an asset (Pulic, 2004; Youndt & Snell, 2004). Therefore, intangible assets in any organization are considered as the components of intellectual capital and are also known as knowledge-based resources for any organization (Garcia-Perez et al., 2020; Zhou & Fink, 2003).

Observing the concept of intellectual capital in any organization, it is inferred that such capital is a knowledge-based resource that playa a significant role. Additionally, a positive linkage has been observed between the IC components, economic value, and market performance (Cheng et al., 2010; Bansal et al., 2023). Based on their valuable assets, organizations can explain why the market value of their share is higher than the book value (Pucar, 2012) where the critical reason is that such organizations put more focus on intellectual capital as a primary source of profit generation and value creation (Sharabati et al., 2010). More specifically, it means that the companies can justify their higher level of market value comparatively to the book value by focusing substantially on their valuable assets. In this regard, the key factor behind such success is that these organizations prioritize intellectual capital (IC) as among the critical drivers for creating more profits and value. In simpler terms, the focus on intangible organizational assets like knowledge and expertise contributes substantially to the identified worth of the company in the marketplace while surpassing the value as prescribed under financial statements.

The investment in both tangible and intangible assets of the organization is significant. In accordance with this idea, some authors have stated the view that the general distribution of the organizational resource contains a ratio of 16 and 84, where the former is utilized for tangible assets and the latter is for the intangible assets of the organization (Elsten & Hill, 2017). The significance of intangible assets is also expressed with a view that through such assets, business can perform well even when there is a downturn in the market (Shakina & Barajas, 2014).

Although the title of intellectual capital, along with its various components, is achieving some reasonable attention, a significant literature gap is yet to be explored for determining the role of various components of IC in determining organizational

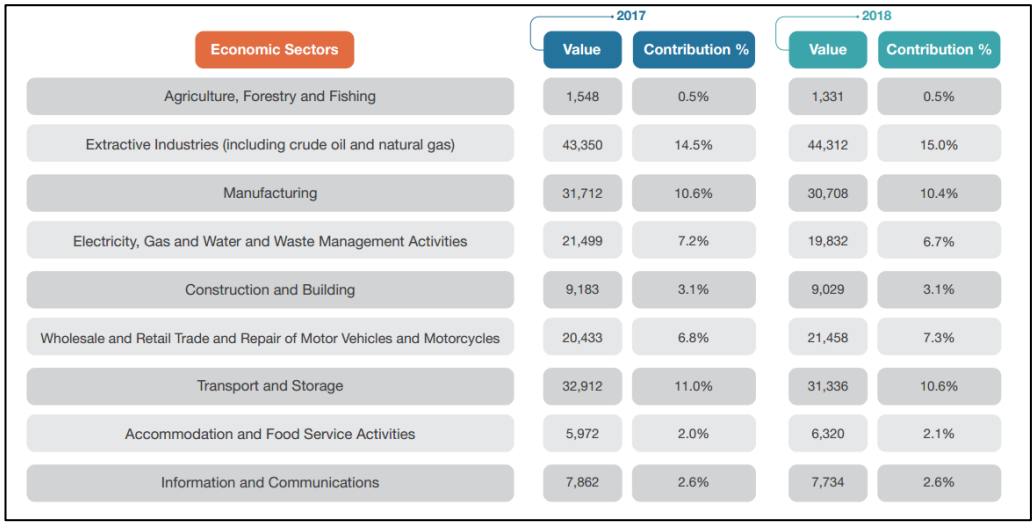
success in construction organizations. More specifically, the title of IC is considered as a stock of knowledge for any organization (Ragab & Arisha, 2013); it combines the various resources like intellectual property, education and skills of the employees, information technology (IT), research and development and conducted by the organization (Hasan, 2021; Truong et al., 2024). However, an in-depth understanding of the various components of IC is required in order to examine their impact on the organization performance. In this way, Sharabati et al. (2010) have expressed their view that intellectual capital in any organization covers titles like human capital, structural capital, and relational capital. More specifically, like human capital, the title consists of employees' skills, competencies, and intellectual agility (Dwikat et al., 2023). Structural capital also covers non-human storehouses, which are entitled systems, databases, and programs. In contrast, relational capital is all knowledge embedded in a relationship with various parties, including suppliers, customers, and stakeholders, as expressed by Sharabati et al. (2010). Additionally, some other components are entitled as spiritual and social capital (Asiaei & Jusoh, 2015).

It is found that each of the above-stated components of IC plays a significant role in determining organizational performance (Lu et al., 2021; Truong et al., 2024; Xu & Liu, 2020). Meanwhile, investment in all of these components of IC in the form of employee training and development, research and development, administrative system, new technologies, and relationship management can generate some meaningful output, as stated by Jabbar and Afza (2014). A similar argument is shared by Zambon (2003), who claim that a higher level of a organization’s investment in IC than some physical assets may create more value for the organization. Although significant research has been conducted while considering the components of IC and

their association with business performance, their implication for the construction industry is minimal, and only a few research works have been found in this regard.

1.2 Overview of Construction Industry in UAE

In any economy, the construction industry is to be considered as a backbone in terms of development and infrastructure (Anaman & Osei-Amponsah, 2007). For the economy of the United Arab Emirates (UAE), the construction industry is among the key sectors specifically in expanding the infrastructure. As per the findings of the Ministry of Economy (2019b), it is found that during the year 2018, the construction and building sector in UAE contributed 8.5 percent in terms of gross domestic product (at constant price), which is to be considered third in ranking after extractive industries (including oil and natural gas), wholesale and retail trade, and repair of motor vehicles and motorcycles whose contribution in GDP is 30 percent and 11.6 percent, respectively. In addition, Figure 1.1 provides an outlook for the gross fixed capital formation according to sector in current prices of 2017 and 2018 in AED million, where it is found that the construction and building sector in UAE has contributed 9183 AED million or 3.1 percent during the year 2017, and 9029 AED million or 3.1 percent, respectively. This would justify the argument that the significance of construction industry in the UAE cannot be neglected. Furthermore, in terms of private employment share, it is stated that overall, 33.9 percent of employees are registered in construction industry, followed by trade and repair services, which account for 22 percent (Ministry of Economy, 2019b). Moreover, the decline in the expected growth rate of the UAE's construction industry has been observed as 3.8% during 2022, compared to 4.4% in 2021 (Business Wire, 2022).



Economic Sectors	2017 Value	2017 Contribution %	2018 Value	2018 Contribution %
Agriculture, Forestry and Fishing	1,548	0.5%	1,331	0.5%
Extractive Industries (including crude oil and natural gas)	43,350	14.5%	44,312	15.0%
Manufacturing	31,712	10.6%	30,708	10.4%
Electricity, Gas and Water and Waste Management Activities	21,499	7.2%	19,832	6.7%
Construction and Building	9,183	3.1%	9,029	3.1%
Wholesale and Retail Trade and Repair of Motor Vehicles and Motorcycles	20,433	6.8%	21,458	7.3%
Transport and Storage	32,912	11.0%	31,336	10.6%
Accommodation and Food Service Activities	5,972	2.0%	6,320	2.1%
Information and Communications	7,862	2.6%	7,734	2.6%

Figure 1.1 Gross Fixed Capital Formation (AED and %)

Source: Ministry of Economy (2019b)

Moreover, it was found that there are currently 6000 construction companies working in the regional context of UAE (Seghedoni, 2022). These companies are mainly working for infrastructure development in the form of residential construction, commercial construction, industrial construction, heavy civil construction, building and housing, oil and gas construction, bridge construction, telecommunication, educational facility construction, highway construction, and many others. Additionally, the consideration of trends and opportunities in the construction of the UAE has also provided some appealing outlooks. For example, in October 2022, the government of UAE disclosed its federal budgetary allocation while showing an expenditure above AED252 billion as planned for the period from 2023 to 2026 (Chambers and Partners, 2023). Remarkably, a total portion of 39% of this budget has been earmarked for social development and similar benefits to society while serving as a pivotal incentive for heightened expansion within the construction industry in a similar region. Meanwhile, the stabilization of oil prices has additionally contributed to the UAE's substantial economic progression in both the construction and

infrastructure sectors respectively. Additionally, it is projected that there will be a significant emphasis on mega projects like infrastructure, real estate, and oil and gas domains, hence amplifying the output in the UAE's construction industry (Chambers and Partners, 2023). However, it was found that UAE's construction sector declined by 4.8 percent during the year 2020 due to COVID-19. Besides, with the approval of the new Dubai Building Code in October 2020, there is a possibility of a revised set of construction rules and standards (Business Wire, 2022).

In addition, the construction industry in UAE comprises various employment titles like planning manager, commercial manager, architect, project engineer, project manager, general manager, quantity surveyor, contracts manager, safety officer, regional director, and site engineer, respectively (Johnson & Babu, 2020). These individuals play a significant role while providing valuable services in different work settings. The given employment titles linked with the construction industry of UAE reveal that there is a multifaceted nature of the rules as performed by these individuals which are directly connected with the organizational performance in a similar industry. Additionally, the given rules also imply that there is a presence of several managerial levels in the construction industry.

The COVID-19 pandemic has caused major disruptions in the UAE's construction industry, creating ongoing uncertainty and challenges for contractors. Every day brings new problems, from unpredictable deliveries of materials to labor shortages, quarantines, and health and safety concerns (Mashreq, 2020). The situation is especially difficult in labor camps, where migrant workers live in crowded conditions, making it hard to maintain social distancing. Many workers are either infected, in quarantine, or reluctant to return to work due to the health risks, leading to

a shortage of skilled labor. This has caused delays in projects, with subcontractors and consultants also unable to visit sites (Mashreq, 2020).

The pandemic has worsened issues that the construction industry was already dealing with, like the economic fallout from the 2008 global financial crisis and the 2014 drop in oil prices. Many construction companies were restructuring their debt even before COVID-19, and now, they are facing more financial pressure as projects are delayed for months (Mashreq, 2020) . On top of this, motivating employees has become difficult, especially with pay cuts, impacting productivity and morale. While the government has taken steps like sterilizing labor camps and offering free testing to workers, the overcrowded conditions and ongoing health concerns continue to challenge the sector. As a result, the construction industry in the UAE is struggling to recover, and the full impact of the pandemic is still unfolding.

In the context of the UAE's construction sector, the disparity between capital productivity and labor productivity is a significant concern. Capital productivity refers to the efficient use of financial resources, technology, and machinery to achieve output, while labor productivity is linked to the performance and efficiency of workers. According to the UAE Construction Industry Report (Mashreq, 2020), the UAE has heavily invested in advanced machinery and technologies, which increases capital productivity. However, the labor productivity in the sector remains low due to factors such as the reliance on low-cost migrant labor, many of whom lack the specialized skills needed for complex tasks (Alnachef & Alhajjar, 2017). Additionally, poor working conditions in overcrowded labor camps and the physical demands of the work contribute to low labor productivity (Khalique & Ramayah, 2018).

This discrepancy is further exacerbated by the high turnover rates and the challenges in maintaining consistent and skilled labor forces on construction sites (Abhayawansa & Abeysekera, 2008). Additionally, the industry's focus on capital investments without equally addressing labor development creates a significant gap in productivity. Therefore, improving labor productivity through better training, working conditions, and effective management of human capital is critical to bridging this gap and maximizing the returns on the considerable capital investments in the UAE's construction sector.

1.3 Problem Statement

In the regional context of the United Arab Emirates (UAE), the construction industry has witnessed a range of challenges causing poor performance (Mohammed & Ishak, 2024). More specifically, these issues have been identified as time delays, frequent overruns in the construction budget, conceded safety practices, substandard or inferior project-related quality, client dissatisfaction from the client, lower level of labor productivity, and contractor discontent with profitability, respectively (Mohammed & Ishak, 2024). More specifically, the construction industry in the UAE has also experienced financial constraints that intensify the industry's challenges, particularly in the form of frequent budget overruns. The complicated nature of construction projects in the UAE's region has been coupled with the dynamic conditions of the market, where accurately estimating costs is among the core challenging tasks faced by the industry (Johnson & Babu, 2020). Consequently, construction projects typically surpass their initially allocated budgets, placing a considerable burden on the financial domain while compromising the overall economic sustainability of the industry (Johnson & Babu, 2020).

In addition, there exists a notable disparity between capital productivity and labor productivity, particularly within the UAE's construction sector. This unsuitableness, alongside the technological access and advancement in a similar economy has introduced a discernible imbalance in macroeconomic growth. More specifically, a closer examination of the construction sector reveals that labor productivity has been found to be comparatively low compared to other sectors like oil, finance, transport, and manufacturing (Omoregie et al., 2017). Meanwhile, the existing research indicates a considerable decline in total labor productivity for the Gulf Cooperation economies in recent years. This is because the repercussions of the global financial downturn, notably in terms of the adverse effects on the construction and property markets, have aggravated the challenges faced by the UAE (Omoregie et al., 2017). This decline in productivity is associated with the economic principle that efficiency in terms of the production of goods and services is conditional upon the ratio of resource input to output. In this context of the construction industry, low productivity exists, which is attributed to either workforce reductions or insufficient technological advancements.

While the construction industry in the regional context of UAE serves as a cornerstone in driving economic progression, particularly in terms of mega projects, the attraction of its significance is hardened by a prevailing concern. For this reason, the construction industry in the UAE grapples with a pervasive and concerning trend of poor performance, marked by an exhibit of challenges and concerns that significantly impede its efficiency and effectiveness. For this reason, the construction industry heavily depends on human resources, where using unskilled and experienced labor force and related individuals can adversely impact productivity and performance dynamics. This can infer that both human resources and the construction industry's

performance are directly connected to factors like decreased productivity, poor quality work, safety hazards, and increased cost. However, to improve the poor performance, various policymakers, researchers, and industry experts suggest that focusing on the intellectual capital of organizations like construction organizations may generate fruitful results over the long run.

It is stated that the construction industry is distinctive and dynamic, regularly dealing with a lot of risk and uncertainties along with temporary teams from multi-cultural backgrounds (Chan et al., 2004; El-Sayegh, 2008). However, the construction industry's low or poor performance is not determined by a single factor but by various factors playing their role. As determined under the study background, the role of organizational resources and their management is significant in achieving higher performance output. However, researchers have also expressed their view regarding low performance in the construction industry as a worldwide phenomenon (Mahamid, 2016; Puspasari, 2005). For example, in the regional context of Saudi Arabia, there exist several key factors responsible for the poor performance in the construction industry (Mahamid, 2016). The study findings have explained that poor communication is considered the top factor contributing to the low performance of construction projects, followed by poor productivity from labor, poor planning, and scheduling. The logic behind this phenomenon is that among intellectual capital's critical dimensions, relational capital's role is substantially essential and is directly connected with the communication and relationships between stakeholders, including the project owners, managers, suppliers, employees, and other partners, respectively. Moreover, clear and concise communication develops trust between different parties, which is undoubtedly a fundamental component as reflected under relational capital. Besides, clear communication between different stakeholders tends to promote the

concept of strategic alliance, which is undoubtedly an integral component of intellectual capital (Simonin, 2004). Poor communication in the construction industry directly affects relational capital, which is a key part of intellectual capital. Relational capital focuses on the value of good relationships and effective communication between all parties involved, like clients, contractors, and workers. When communication breaks down, it leads to confusion, delays, and inefficiencies, which can hurt collaboration and project outcomes. Strong communication helps build trust, manage expectations, and encourage cooperation, all of which are crucial for improving performance. So, improving communication can strengthen relational capital and ultimately lead to better results in construction projects.

Considering the above-given thoughts, it is inferred that improper communication, labor productivity, and other factors are responsible for the low-performance outlook in the construction sector. Meanwhile, the non-availability of resources, low level of project leadership skills, and unavailability of highly experienced and qualified personnel are primarily responsible for the poor performance as depicted by the construction industry (Enshassi et al., 2009; Misra & Mohanty, 2021). Moreover, the poor management of the resources, project management, and administration issues in the contract are some examples of lower performance outlooks in the construction industry (Memon et al., 2012). Meanwhile, some others have also highlighted the factors affecting the performance in the construction industry (Babalola et al., 2015). They have claimed that the motivating skills of the project team leader, experience, and technical skills are among the most influential factors in determining performance in the construction industry.

Moreover, skilled workers' performance is considered one of the most crucial aspects of labor productivity, which needs significant attention in the construction

industry (Zannah et al., 2017; Khanh et al., 2023). It means that low productivity of labor in the construction contributes towards inefficient construction project delivery (Zannah et al., 2017). At the same time, it is also claimed that resource management in the contract is among the critical factors for determining the performance outlook (Alaloul et al., 2020). More specifically, concept of resource management in construction agreements emerges as a central element that connects the various components that are essential for the accomplishment of the strategic objectives of the project. Meanwhile, the term resource management assumes a substantial role while influencing the performance outlook. This is because adept resource management coordinates a balanced integration of human expertise in terms of skill, knowledge, and expertise along with the materials, equipment, and financial resources to help determine collective and efficient efforts.

Additionally, the planning and distribution of resources under the title of resource management not only promises the timely and cost-efficient fulfillment of the different project-related tasks but also functions as a protective measure against potential challenges the project faces. Resource management within the context of contracts becomes known as an alchemic process, where resource-related challenges transform into successes. Gadisa and Zhou (2021) determined that when focusing on the ten critical factors of the poor performance of construction industry, the role of weak project management skills cannot be neglected.

The above-stated theoretical and empirical findings by the recent and past studies have made it evident that factors like the productivity of the labor, experience, technical skills, overall management structure, and specifically the management of various organizational resources play a significant role in determining the success of the construction projects in both developed and emerging economies (Belout &

Gauvreau, 2004; Elmezain et al., 2021; Kirchev & Bartoschek, 2021). This would justify the significance of intellectual capital components like human capital and structural capital, where the former is linked more with labor productivity, skills, and expertise, and the latter is associated with the structural layout as well. Furthermore, a vast body of literature has also provided enough evidence to support critical success factors of construction projects (Alaloul et al., 2020; Wu et al., 2019). More specifically, the role of relationship management is also significant, including factors like time, cost, and quality of the construction project (Meng, 2012). His study has primarily focused on the supply chain relationships in construction and to assess their impact on project performance for the United Kingdom construction industry. The empirical output suggests that the deterioration of the relationship between project parties may increase the likelihood of poor performance in the construction industry. However, with the effective management of relationships among different parties, a reduction in poor performance is possible. In this regard, creating a long-term collaboration between the parties helps to improve the performance issues, too.

In addition, some authors have also explored various factors in the construction industry (Meng & Boyd, 2017). They have claimed that as a significant sector, the construction industry has increasingly embraced the concept of project-based relationship management. Therefore, effective relationship management can provide improved performance outcomes in the construction industry (Meng & Boyd, 2017). On the other hand, researchers have also explored the quality of the construction industry and inferred that trust is the most influential factor in determining relationship management (Martin & Benson, 2021). It is believed that effectively managing the relationship is a critical determinant of competitive advantage and project outcomes as well. It means that the role of relational capital is also among the core determinants in

defining the success or failure for the construction industry which should be considered on serious notes.

The role of religious and spiritual feelings is also significant in examining the performance of any business. However, religiousness is evident in every aspect of life, and its role in performance determination in the construction industry is undeniable. Although religious factors are a significant determinant of the construction industry's performance, very little has been done in this regard, specifically for the construction industry (Martin & Benson, 2021). It is stated that among other types of capital, spiritual capital plays a significantly positive role in organizations' innovation and performance (Neubert et al., 2017). This would justify the argument that, like other components of IC, spiritual capital can also be considered a positive addition to the higher performance outlook in the construction industry.

Lastly, it is observed that although the components of IC, like human capital, structural capital, relational capital, and spiritual capital, are very significant, all of these components are under very little attention from researchers from the context of the construction industry in UAE as the available literature focuses on the economies like United Kingdom (Nadeem et al., 2016), Australia (Nadeem et al., 2018), United States (Riahi-Belkaoui, 2003), South Africa (Firer & Mitchell Williams, 2003), and various other developed and developing economies. The stated debate indicates a big issue in the existing literature where IC components are found to be totally ignored in the construction sector of UAE, whose contribution is very significant in terms of economic growth, gross fixed capital formation, and employment opportunities in the same region. Besides, a supportive work environment in the construction industry is also investigated as a critical role player in resolving issues like burnout and work-family conflict, as expressed by Lingard and Francis (2006). However, its role as a

moderator on the relationship between components of intellectual capital like human, relational, spiritual, and structural capital and the construction industry's performance is also observed as a missing part of the literature to date.

Considering the above given thoughts, this research substantially helps in improving the performance of the construction industry in UAE in several ways. For example, by conducting the empirical investigation, the study significantly considers the productive role of key components of intellectual capital along with the moderating effect of supportive work environment. In this regard, findings from the present study have highlighted valuable insights for the leaders and managers in the construction industry of UAE whereby developing a strategic understanding about the intellectual capital and supportive work environment can substantially improve the resource allocation, organizational development, and talent management, respectively. At the same time, the study has provided a meaningful pathway through supportive work environment as a means to leverage the nexus between key component of intellectual capital and performance of construction industry. Therefore, armed with insights from the empirical outcomes, construction organizations in UAE can develop targeted strategies and tactical planning to address performance related concerns. These strategies may include the investment in knowledge management and employees' development, creating an environment of collaboration and knowledge sharing among employees, and producing a culture that values innovation and continuous improvement. Based on the above discussion and empirical findings, this study has considered the following research questions and research objectives.

1.4 Research Questions

1. What is the impact of the intellectual capital component in terms of human capital on the organization in the construction industry's performance in the UAE?
2. What is the impact of the intellectual capital component in terms of relational capital on the organization in the construction industry's performance in the UAE?
3. What is the impact of the intellectual capital component in terms of structural capital on the organization in the construction industry's performance in the UAE?
4. What is the impact of the intellectual capital component in terms of spiritual capital on the organization in the construction industry's performance in the UAE?
5. What is the impact of supportive work behavior on the organization in the construction industry's performance in the UAE?
6. Does supportive work behavior moderate the relationship between human capital and performance of organization in the construction industry in the UAE?
7. Does supportive work behavior moderate the relationship between relational capital and performance of organization in the construction industry in the UAE?
8. Does supportive work behavior moderate the relationship between spiritual capital and performance of organization in the construction industry in the UAE?

9. Does supportive work behavior moderate the relationship between structural capital and performance of organization in the construction industry in the UAE?

1.5 Research Objectives

1. To measure the impact of the intellectual capital component in terms of human capital on the organization in the construction industry's performance in the UAE.
2. To measure the impact of the intellectual capital component in terms of relational capital on the organization in the construction industry's performance in the UAE.
3. To measure the impact of the structural capital component in terms of human capital on the organization in the construction industry's performance in the UAE.
4. To measure the impact of the intellectual capital component in terms of spiritual capital on the organization in the construction industry's performance in the UAE.
5. To measure the impact of supportive work behavior on the organizations in the construction industry’s performance in UAE.
6. To examine the moderating role of supportive work behavior on the nexus between human capital and the performance of the organizations in the construction of UAE.
7. To examine the moderating influence of supportive work behavior on the association between relational capital the performance of the organizations in the construction of UAE.

8. To examine the moderating role of supportive work behavior on the relationship between spiritual capital the performance of the organizations in the construction of UAE.
9. To examine the moderating role of supportive work behavior on the relationship between structural capital the performance of the organizations in the construction of UAE.

1.6 Study Significance

The consideration of the association between selected components of intellectual capital and organization performance can provide a range of benefits and advantages to various stakeholders. Based on this association, this study has some significant potential in explaining the diverse outcomes and benefits from theoretical, methodological, and practical perspectives. Meanwhile, the utilization of IC components like human capital, structural capital, relational capital, and relational capital towards organizational performance in construction can also reap some fruitful outcomes. In this regard, individuals, business managers, and owners of construction companies can make better decisions about higher performance through IC components.

As per the author's knowledge, this is among those few contributions for utilizing the measurement model and structural model assessment in examining the dynamic role of human capital, relational capital, spiritual capital, and structural capital for determining th performance outlook in the UAE construction industry. Using the two-step approach, which is claimed to be the most cited method of primary data analysis in the literature to date, this research has offered a better explanation of the possible association between IC components and organization performance in the construction industry. A detailed investigation of the current literature has made it

evident that most of the earlier studies have examined regression and other traditional analyses for exploring the relationship between IC components and performance. However, this research has conducted all the possible assessments for investigating the validity and reliability of the outer model through the measurement model. Consequently, the implication of the structural equation modeling technique for analyzing the relationship between the study variables in direct and indirect perspectives has also provided excellent methodological significance.

In addition, taken as a whole, current research efforts have broadened the existing body of knowledge in the field of human resource management and organization performance, specifically beneficial to the industry experts, researchers, owners, project leaders, and other policymakers in the construction industry of UAE. For better and more strategic outcomes in the form of higher performance, this study would guide the planning and management of intellectual capital components to increase organizational wealth, which reasonably highlights the significance of the current study under the shadow of decision-making capabilities. Furthermore, better assessment for the management of intellectual capital components would eventually contribute towards stable performance by the construction industry, which indicates the significance of this research in a reasonable manner. Additionally, for project managers/heads, the generated empirical outcomes could enhance their awareness and understanding regarding the role of some intangible resources in generating fruitful results along with physical resources that have already attained good attention by such individuals.

Furthermore, the theoretical significance of this study can be viewed in the sense that it tries to close the literature gap specifically from the context of the construction industry, which is not extensively covered in the literature. Additionally,

this study has explored the linkage between IC components and organization performance under the shadow of a resource-based view, which indicates that utilization of organizational resources would lead to some meaningful results in the form of higher earnings, better customer satisfaction, more growth, and high market share, respectively. Additionally, the RBV theory testing has supported the earlier literature as a good contribution from the context of intangible assets and performance relationships. Besides, this study has also explored and justified the theoretical and empirical role of a supportive work environment in strengthening the association between human capital, relational capital, structural capital, spiritual capital, and the construction industry's performance in the UAE. This would reasonably provide enough evidence to justify the theoretical significance of the current study based on the moderating role of a supportive work environment.

1.7 Study Scope

The scope of any study expresses different perspectives on the nature and range of the study variables, the focus of the study population, the time duration being covered, the nature of the study, the research design of the study, the geographical location of the study and industry/group of industries being observed. Based on these points, the following are the details for the study scope:

The first scope of this study is based on the consideration of study explanatory variables. This is explained with the help of intellectual capital, whose components like human capital, structural capital, spiritual capital, and relational capital are under consideration. Furthermore, the study scope in terms of the main dependent variable specifies that it primarily considers the performance as the main endogenous construct. Meanwhile, the study scope regarding moderator on the relationship between exogenous and endogenous variables shows that supportive work environment is

considered a moderator. In addition, the scope of the current study in terms of time horizon is cross-sectional in nature, where the data is collected from different construction industry respondents over a single period. Meanwhile, the study scope based on the industry shows that this research focuses entirely on the UAE's construction sector while deliberately ignoring the rest of the industries in the same region. The geographical scope of this study reflects that this research has taken into account the UAE as the central region for the consideration of construction organizations working in different areas.

In addition, in terms of the research approach, the scope of this study is based on deductive research, where existing theory (RBV) is tested to explore the relationship between the variables of interest. The scope in the form of research design of this research indicates that it is purely quantitative, where the data is collected only through a questionnaire technique, hence neglecting the qualitative approach like an interview. Furthermore, this study has applied two-step approaches (measurement model and structural model) for data analysis, which indicates its scope in terms of the research methods being applied.

1.8 Definition of Key Terms

This study has considered four components of intellectual capital as determinants of the construction industry's performance, along with the moderating role of a supportive work environment.

1.8.1 Human Capital (HC)

The term human capital is among the core dimensions of intellectual capital, which is based on the competencies, values, attitudes, and education of the employees