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The Role of Organizational Behavior Dimensions in Achieving Organizational Sustainability: The Moderating Impact of Human Resource Development in the Iraqi Construction Sector

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Abstract:
This empirical research aims to examine the relationship between three core dimensions of Organizational Behavior (OB), namely, Organizational Commitment (ORC), Organizational Structure (OST), Employee Engagement (EME), and Organizational Sustainability (OS) within medium and large-scale construction firms operating in Iraq. In addition, the study explores the moderating role of Human Resource Development (HRD) on the interactions between these OB elements and OS. A structured questionnaire was administered to 216 senior executives, including CEOs and senior managers, yielding 161 valid responses that were analyzed using SPSS. The findings confirm that ORC, OST, and EME are all significantly associated with OS. However, HRD only demonstrated a moderating effect on the relationship between OST and OS, while its influence on the connections involving ORC and EME was not statistically significant. These results contribute to the OB and sustainability literature by clarifying how specific behavioral factors influence sustainability outcomes in the construction industry. The study also offers practical guidance for organizational leaders on the strategic use of HRD to reinforce OB, particularly in the context of formal organizational structures, enhancing their responsiveness to sustainability challenges.

Keywords: organizational behavior, organizational commitment, organizational structure, employee engagement, human resource development, organizational sustainability.

1. Introduction:

In recent years, global attention to the sustainability of organizations has grown considerably, largely in response to mounting environmental concerns(Kulkov et al., 2024). These concerns have become especially prominent in the post-industrial era, where rapid industrialization has contributed significantly to environmental degradation (Jabbour et al., 2008). The evolving concept of Organizational Sustainability (OS) has broadened the traditional focus of business strategy beyond economic and financial performance, emphasizing instead a balanced approach that incorporates social (SoS), ecological (EcS), and environmental (EnS) responsibilities across products, services, operations, and overall performance (Tasleem et al., 2019). According to Reisch et al. (2020), cost-realization is not the only benefit realized by organizations that use sustainable practices. Achieve efficiencies and drive better profits while gaining a competitive advantage over conventional business models. Therefore, the idea of OS is gaining appreciation as an important long-term business element. While many advanced economies have successfully implemented environmental sustainability initiatives, developing nations such as Iraq continue to face considerable barriers, particularly due to an imbalance across the three pillars of OS (EcS, EnS, and SoS) (Amjad et al., 2021). In Iraq, the construction sector has struggled to recover from the widespread destruction of infrastructure following the 2003 war, with approximately 70% of roads, bridges, oil refineries, energy plants, public institutions, and housing affected (Mohamed, 2012). Given the pivotal role that medium and large construction firms play in the national rebuilding process, the pursuit of OS within these organizations is both a pressing concern and a strategic priority.

Despite increasing interest in OS, there remains a gap in the literature regarding the role of Organizational Behavior (OB) in advancing sustainable outcomes, especially in the Iraqi context (Ibrahim et al., 2020). Prior empirical studies have predominantly addressed OS from diverse perspectives, focusing on various dimensions (e.g., Abdul-Rashid et al., 2017; Gimenez et al., 2012; Hami et al., 2016)but have largely overlooked the behavioral underpinnings critical to enhancing SoS, EcS, and EnS (Hami et al., 2016). Conceptual research has emphasized that key OB constructs such as ORC, OST, and EME serve as drivers in the successful implementation of sustainability practices (Benkarim & Imbeau, 2021; Glavas, 2012; Schutte & Bhullar, 2017). Accordingly, this study seeks to offer new insights by examining how these behavioral factors shape OS, particularly in volatile and rapidly changing markets like Iraq. In addition, many organizations in developed nations have embraced “green human resource management” initiatives, recognizing HRD as a strategic mechanism for enhancing ORC, OST, and EME in support of sustainability goals (Bombiak & Marciniuk-Kluska, 2018). Within this framework, HRD plays a transformative role in aligning employee skills and organizational practices with environmental and social priorities.

Nevertheless, this research does not focus on the theoretical evaluation or examination of the relationships between obstacles of business variables but rather on their empirical evaluation within the Iraqi construction industry, specifically examining the following key variables: ORC, OST, EME, HRD, and OS. The paper contains five sections; after this introductory section, there is Section 2: survey of related literature on OB, HRD, and OS, Section 3 formulates the hypotheses of the research, and Section 4 presents the methodology. Section 5 advances the results, after which the discussion and conclusions are presented.

2. Literature Review and Hypothesis Development:

OB has a strong impact on the quest for environmentally friendly outcomes (Farooq et al., 2023). It provides a basis for increasing the importance of fundamental factors such as Organizational Commitment (ORC), Organizational Structure (OST), and Employee Engagement (EME), which all assist in creating that accountability and sustainability in organizations to enforce corporate social responsibility.

An increasing amount of literature has established ORC, OST, and EME as key enablers in developing a sustainable organizational system (Alola et al., 2018; Benkarim & Imbeau, 2021; Saratun, 2016). For example, Alola et al. (2018) highlight OST as an important structural driver to ensure organizational activities towards sustainability. Saratun (2016) underlines the role of leadership in the construction of employee trust and involvement in support of EME, while Benkarim & Imbeau (2021) posit strategic drivers for the ORC core mechanism that fuels radical innovation through a coevolutionary process. However, Saadi & Razak (2019) highlight the growing value of sustainability strategies as a source of competitive advantage in the employment landscape.

2.1 Organizational Sustainability:

The term Organizational Sustainability (OS) refers to how organizations can respond to their current performance requirements and, at the same time, possess the flexibility and dynamism to respond to future requirements. According to Deloitte and Touche (1992), OS is the use of strategies that meet current stakeholder demands and at the same time, leave them with vital human and environmental assets to be used by future generations. In continuation of the initial debates of sustainability, including those currently being conducted by the World Commission on Environment and Development (WCED), scholars like Amini and Bienstock (2014) and Tsai et al. (2013) have argued that sustainable businesses would entrench the sustainability paradigm into their operational agenda. Initially, in the construction industry, the concept of sustainability was linked to the management of exhausted resources, especially energy, and minimizing environmental depletion with the enhancement of materials, design, and technologies (Hossain et al., 2020). Sustainable construction integrates the concept of sustainable development by equally considering the aspects of ecological responsibility, social, and economic viability in project planning and assessment (Misopoulos et al., 2022). According to Willard (2012), OS is founded on three pillars of sustainability, i.e., ecological (EcS), environmental (EnS), and social (SoS). To the extent that the firm uses the strategic response in dealing with these dimensions, the sustainability framework takes a wider view that is not only based on economic aspects (Hamed, 2025; Nouri et al., 2022). The indispensability of these three pillars in the development of sustainable business logic has been confirmed by scholars as Ghimire 2023; Golubeva, 2022; Tsai et al., 2013. The green building practices is also taking shape in most parts across the globe, becoming a challenge to the business leaders in terms of integrating sustainability in enterprise development in the long-term (Siegel et al., 2019). Despite policies, there is not much support or knowledge on the sustainable construction of project stakeholders (Yin et al., 2018). In the future, sustainability in construction has to be implemented at all levels in construction projects so as to promote a balanced development between environmental preservation and economic growth. The level of job satisfaction did not conform to existing expectations (Misopoulos et al., 2022).

The built environment, encompassing all construction activities, can significantly affect the natural world if not managed properly. While construction companies may not control natural resource extraction directly, they can influence sustainability by using fewer non-renewable materials, incorporating recycled resources, and adopting energy-efficient practices (Ahmad & Al-Aidami, 2025). Furthermore, social sustainability highlights the well-being of workers and end-users, encompassing job satisfaction, security, skill development, and emotional fulfillment (Missimer et al., 2017). Importantly, sustainability does not require the complete elimination of negative impacts, but rather their reduction to manageable levels (Bech-Danielsen & Gram-Hanssen, 2004). Drawing on this literature, the ternary sustainability model emphasizing ecological, environmental, and social dimensions provides a comprehensive framework for OS. This tripartite view is widely supported in academic and empirical studies (Andersson et al., 2023; Ordonez-Ponce et al., 2021). While some authors address OS using similar conceptual groupings (Blinova et al., 2022; Khizar et al., 2023), the ternary approach remains central to this study.

2.2 Organizational Behavior:

The attainment of strategic objectives of an organization is immediately related to the actions of the workforce (Ibraheem & Mhaibes, 2025). OB, being a derivative of the organizational policies, is intended to help improving performance by making observations of OB and interventions through key organizational measures (Sigurdsson & Austin, 2006). Behaviour change is driven by a wide range of tools used by managers including task clarification (Shier et al., 2003), goal setting (Ludwig & Frazier, 2012)), training (Orumiyehei et al., 2022), feedback (Sedrakyan et al., 2020), engagement strategies (Jeung, 2011) and rewards (Schuman-Olivier et al., 2020). Various methods of organization systems (Brethower, 2000) are often proposed in combination with these methods, which allows for adding organization system change to the plans and provides support in all tiers of the company. As varied studies assert, the effectiveness of the OB methods in enhancing employee outcomes in various sectors are confirmed (Cooper et al., 2017). Nevertheless, to achieve long-term change in behavior, it is essential to take into consideration whether the desired results are persistent or not (Sigurdsson & Austin, 2006). OB is a primary influence on the development of sustainability-oriented mindsets and the process of decision-making regarding the sustainability of development. Although the discussion of sustainability is usually based on structure and functionality, policy, and strategic commitment, OBs provide important soft forces upon which or through which the abovementioned factors are discussed. The concern about values-driven leadership is reflected in such initiatives as the UN Principles on Responsible Management Education (PRME) (Alcaraz & Thiruvattal, 2010; Saadi, 2023). Accordingly, ORC, OST, and EME turn out to be important behavioral constructs that affect organizational sustainability.

2.2.1 Organizational Commitment:

The interest in ORC was a part of the studies carried out during the1960s (Becker, 1960). The empirical evidence indicates that a commitment has a positive influence on work performance and general effectiveness in an organization (Nguyen et al., 2020). Although much of this work is done in the Western context, the non-Western view on the subject is still underrepresented. ORC manifests in multiple forms: care for employee well-being, support for their development, equitable compensation, and profit-sharing initiatives (Massoud & Jameel, 2020; Srinivasan & Moorman, 2005). Studies by Moorman et al. (1998); To & Huang, (2022) found that perceived organizational support leads to greater conscientiousness, initiative, and innovation, often without the need for direct incentives. Enhancing ORC fosters stronger work attitudes, employee satisfaction, and organizational loyalty (Ridwan et al., 2020). Scholars increasingly agree that ORC enables firms to develop capabilities, drive creativity, and implement strategic goals. In both Western and Eastern contexts, a reciprocal relationship between employer commitment and employee dedication is viewed as central to long-term sustainability (Bae et al., 2020; Jeon & Choi, 2020; Murray & Holmes, 2021).

2.2.2 Organizational Structure:

OST is a dimension of OB, consisting of formal systems (e.g., centralization, hierarchy) and informal networks formed through daily interactions (Moorhead & Griffin, 2008; Whetsell et al., 2021). Informal structures can create coordination challenges, particularly in large organizations. For this reason, this study focuses on formal structures, which are particularly effective in public and large-scale enterprises. Formal OST emphasizes centralized decision-making, clear communication protocols, and structured authority flows (Dominguez Gonzalez, 2023; Germain, 1996). Employees in these environments are more aligned with company policies (Lee & Yang, 2011), and formal systems are more likely to link strategic goals to measurable outcomes.

Diagnostic control mechanisms such as output monitoring and procedural guidelines enable firms to track performance and reinforce accountability (Christen & Schmidt, 2012; Merchant, 1985; Waterhouse & Tiessen, 1978). OST has a direct influence on sustainability success and strategic alignment (Abernethy et al., 2004; Luft & Shields, 2003). In construction firms, where decision-making efficiency is essential, formal structures support OS by enabling effective resource coordination and performance tracking (Jansen et al., 2006).

2.2.3 Employee Engagement:

Kahn (1990) introduced EME as the psychological state where individuals fully invest themselves physically, emotionally, and cognitively in their work. Since then, the concept has gained traction in both academia and industry (Burnett & Lisk, 2021; Jeung, 2011). May et al. (2004)distinguished engagement from job involvement and flow, describing it as a holistic investment of the self in role performance. This aligns with Kahn's foundational definition and has been widely adopted in OB literature (Bakker, 2022; Rich et al., 2010; Schaufeli et al., 2002). From an OB standpoint, engagement emphasizes employee strengths, motivation, and fulfilment. Engaged workers are more productive, collaborative, and purpose-driven (Chua & Ayoko, 2021). They contribute positively to the workplace culture and sustainability objectives, reinforcing the importance of engagement as both a measurable construct and a critical driver of long-term performance.

2.3 Human Resource Development:

The recognition of internal resources as drivers of corporate growth has gained widespread acceptance, reinforcing the strategic role of human resources in organizational success (Bag et al., 2021). As noted by Banerjee (2013) and Jin et al. (2023), human resources encompass the collective experience, knowledge, abilities, judgment, skills, wisdom, and risk-taking propensity of individuals associated with an organization. While prior research largely emphasizes the critical role of knowledge and skills in achieving business sustainability (Chopra et al., 2021; Karaca-Atik et al., 2023). The importance of knowledge is becoming an essential asset of innovation. It works as one of the primaries mean of creating new ideas and the production of new insights (Doran & Ryan, 2014). There are two main types of knowledge known as explicit and tacit (Caloghirou et al., 2018). Explicit knowledge is codified (easy to express), can be transferred easily (Anand et al., 2010; Berraies et al., 2021). On the contrary, tacit knowledge is both experiential and situationally, or circumstantially specific, and has a challenging formalization and articulation. Personal experience is usually implicit and is taken form actions or behaviors, thus being intrinsically unclear (Berraies et al., 2021; Schoenherr et al., 2014). Tacit knowledge was once famously dubbed by Philosopher Polanyi (1966) as "knowing more than we can tell", referring to the kind of intuitive know-how that operates below the level of conscious awareness.

Von Krogh et al. (2000) emphasized that tacit knowledge, rather than explicit knowledge, often constitutes the core source of an organization's competitive advantage. Consequently, organizations that effectively develop and utilize unique knowledge assets are more likely to enhance their overall performance (Jiménez-Jiménez & Sanz-Valle, 2011).

Mincer (1962) argued, however, that knowledge alone is insufficient; the workforce must also undergo targeted training to fully develop their skills. Dishon & Gilead (2021) highlighted the necessity of adapting training and education systems in response to evolving skill requirements. Becker (1993)distinguished between two types of skills: general skills, which are transferable and enhance employee productivity across various contexts, and specific skills, which are tailored to a particular organization and may not contribute to productivity elsewhere. Therefore, specific training becomes essential in cultivating these specialized skills without compromising performance (Aliu et al., 2023). The investments in the development of definite skills are frequently associated with greater competitive advantage (Kadim & Saleh, 2025).

The current study will build on the previous works to develop human resources, which incorporates the tacit knowledge and specialized training as one of the critical factors of organizational behavior, which leads in the long run to the sustainability of organizations.

2.4 Hypotheses Development and Research Framework:

ORC is a key concept of the OB area, and it will provide great insights into the role of individuals and groups as they act in the context of organizations. OB dimensions, which include leadership styles, workplace culture, employee motivation, and satisfaction with the job feature, among the factors that influence the formation of ORC (Ridwan et al., 2020). The prior research has been congruent with the fact that ORC is a positive factor influencing the long-term organizational development (Murray & Holmes, 2021). Along with increasing employee concentration on the long-term strategic objectives, ORC itself is helping to improve the sustainability of the organization. Companies that cultivate a high rate of commitment at the workforce level have high chances that their employees would play active roles at sustainability-spearheaded initiatives (Ridwan et al., 2020). Engaged workers will also tend to contribute to work supposed to be done in the field of corporate social responsibility and environmental protection (Bouraoui et al., 2020). Employees who have a moral responsibility to stay with their employer are likely to engage in ethical activities and support a sustainable business process. As an example, Mura et al. (2024) established that there was a significant correlation between ORC and adoption of sustainable strategies, whereas Collier & Esteban (2007) pointed out that employee wellbeing is good as it improves employee enrolment into sustainability initiatives. The results further illustrate the tactical prospects of ORC in supporting the long-term sustainability agenda. As a consequence of it, the next hypothesis is laid:

H1: ORC is significantly related to OS. One of the main contributors should be the OST of any company, concerning its potential to create and sustain efficient sustainability programs (Christen & Schmidt, 2012). Effective OST facilitates the flow of information, decision-making, and responsibility, all of which are critical in incorporating sustainable processes into the everyday working processes (Dominguez Gonzalez, 2023; Germain, 1996). According to the reports of McKinsey & Company, firms whose governance systems have put more focus on sustainability fare better in creating long-term value. This mostly includes rearranging fundamental processes to include sustainability as a business strategy, as well as ensuring its adoption at all levels. Centralized and formalized structures are more efficient clarity, uniformity, and enhanced communication channels can be supplied within sustainability-related decisions (Whetsell et al., 2021).

These systems typically integrate sustainability performance indicators and accountability mechanisms (Lee & Yang, 2011), reinforcing the importance of sustainability within the organizational culture (Hayat et al., 2022). As such, structured communication channels and decision-making frameworks can create an environment where sustainable practices are an organizational norm. Thus, the following hypothesis is developed:

H2: OST is significantly related to OS. EME has emerged as a crucial enabler of OS(Saratun, 2016). Highly engaged employees tend to be more motivated, productive, and committed to quality outcomes, all of which contribute to enhanced organizational performance and long-term viability. Organizations that promote engagement empower employees to contribute innovative ideas for improving processes, products, and services, ultimately supporting long-term sustainability (Chua & Ayoko, 2021). Engaged individuals are emotionally connected to their work and committed to organizational values (Kahn, 1990). Organizations characterized by strong engagement practices are generally better equipped to navigate change and uncertainty, whether driven by market dynamics, economic pressures, or technological disruption (Bakker, 2022; Saratun, 2016). Effective leadership is key to fostering engagement by articulating a clear vision, recognizing employee contributions, and cultivating a supportive work environment.

Studies by Hieker et al. (2024) emphasize how engagement at all levels, from executives to frontline workers, supports daily sustainability actions and builds a cohesive, purpose-driven culture. Their findings highlight the importance of employee commitment in sustaining corporate responsibility efforts. Therefore, the following hypothesis is advanced:

H3: EME is significantly related to OS. ORC directly depends on HRD (Şendoğdu et al., 2013) and is critical in creating managerial and theoretical activities to spearhead sustainability. HRD professionals must create training and capacity-building programs that will correspond with the organizational goals of sustainability (Mishra, 2017). Such programs allow employees to gain the competencies required to engage in sustainable behaviour, besides fostering a commitment culture by communicating the fact that the organization values its employees (Şendoğdu et al., 2013). In that regard, HRD has been revealed to moderate the connection between ORC and OS. According to Karatepe et al. (2025), the relationship between commitment and sustainable performance became extremely strong when capability-enhancing HRD initiatives were used. Quite comparable findings were presented by Nahak & Ellitan (2022), who stated that HRD programs adapted to the idea of improving ORC provide a positive contribution to sustainability results. Based on this foundation, the following hypothesis is proposed:

H4a: HRD significantly moderates the relationship between ORC and OS. HRD is also involved in determining the effects of OB on sustainability outcomes since they develop skills and establish knowledge and value conformity (Ardichvili, 2013; Mishra, 2017). HRD programs have been able to institutionalize ethical practices, environmental management, and social responsibility within OST through advancing formal systems and viable governance systems (Chams & García-Blandón, 2019). Efforts to obtain sustainability awareness, obtain incentives based on outcomes, and participation in environmental programs nourish sustainable conduct on the part of the workforce and build a favorable culture of sustainability (Malik et al., 2021). In addition, HRD can make employees more cognizant and accustomed to formal OST, which refines the process of implementing sustainability strategies (Fu et al., 2022). It equally promotes flexibility and responsiveness by making structures less rigid with constant learning and innovation. Based on this, the hypothesis of the following nature is formed:

H4b: HRD significantly moderates the relationship between ORS and OS. HRD plays a big role in EME as an OB construct. Employee lived experiences influence engagement when there are expressions of interaction in the organizational environment (Ludwig & Frazier, 2012). HRD offers the much-needed learning and development opportunities that contribute to the capacity building of an employee's confidence and feeling of value added (Aliu et al., 2023). Through these initiatives, sustainability principles are embedded into employees' roles and responsibilities (Chams & García-Blandón, 2019). By promoting ethical decision-making, resource optimization, and innovation, HRD empowers employees to contribute meaningfully to sustainability goals (Doran & Ryan, 2014). HRD thus ensures that engaged employees channel their energy into advancing sustainability performance. However, this connection does not occur naturally; HRD plays a crucial moderating role in aligning EME with OS by designing systems, structures, and incentives that support sustainable outcomes (Sibhatu et al., 2025). Therefore, the final hypothesis is proposed:

H4c: HRD significantly moderates the relationship between EME and OS.

3. Research Methodology:

3.1 Conceptual Framework:

The basis of this research is available in two critical theoretical frameworks. To begin with, the HRD Theory stresses that training, improvement of knowledge, and employees' involvement in the organization always lead to better effectiveness and sustainability of the organization in the long run (Ardichvili 2013). In this context, HRD is not only a learning method, but also an enabling mechanism that can either empower or disempower the role of organizational factors when determining the results of sustainability. Second, it is based on the Sustainability Theory, or Triple Bottom Line (TBL) model (Missimer et al., 2017) that describes sustainability as

consisting of economic, social, and environmental performances. As held by this perspective, commitment to goals, effective structural design, and active EME as forms of OB are direct contributions to the attainment of the dimensions of sustainability. On these premises of theory, the conceptual framework hypothesizes that OST, organizational commitment, and EME have positive effects on organizational sustainability. In addition, it is believed that HRD moderates these relationships, which reinforces or changes the degree to which OB dimensions are driven into sustainable results. The proposed conceptual framework is shown in Figure 1.

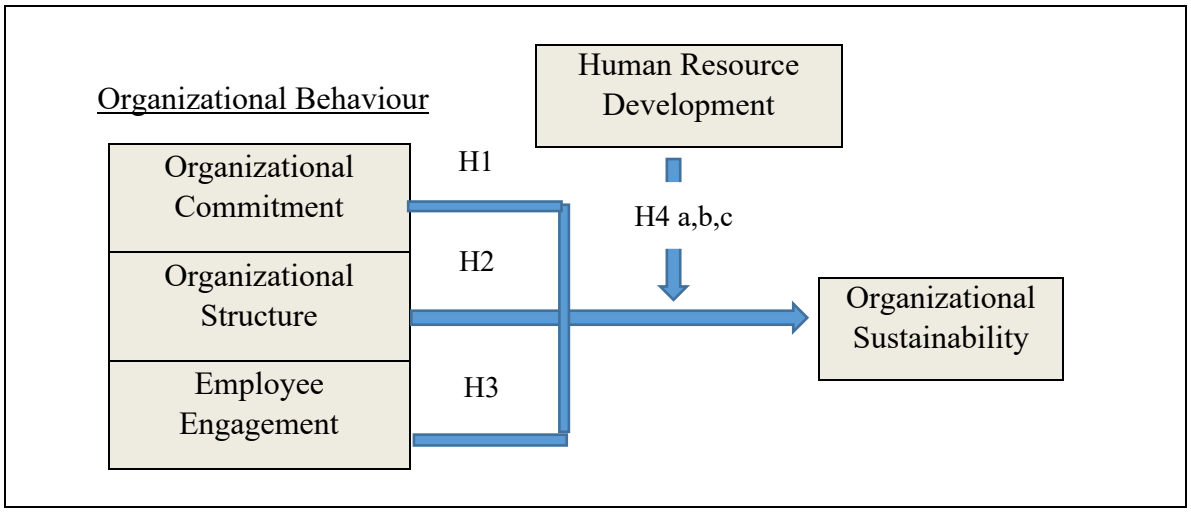

Figure1: The Conceptual Framework

Source: Prepared by the Researcher

3.2. Methodology:

In this study, a deductive research approach is applied because it is a hypothesis testing based on existing theories concerning OB and sustainability. It utilized a quantitative research design with a structured questionnaire as the data collection instrument. This method is suitable when looking into causal relations between organizational variables in an environment of large samples.

3.3 Data collection and sample:

This study employed a non-probability sampling method to collect data from construction companies operating in Iraq. The sample was derived from the official directory published by the Iraqi Ministry of Planning, which provides comprehensive details about construction firms across the country. This directory includes company profiles, executive leadership (such as the CEO's name), the date of establishment, and other operational details such as employee count, project completions, quality certifications, and annual work records. Importantly, these companies are actively involved in reconstruction efforts in Iraq through formal business contracts. A self-administered questionnaire was issued to collect data, which was based on the main sustainability notions raised during the literature review. The survey aimed to determine the extent to which OB in the Iraqi construction industry conforms to the principle of sustainability. The selected respondents were CEOs, top managers, and operational leaders in construction companies in the region.

The Baghdad, Basra, and Nineveh provinces are economic provinces, tourist provinces, and those where the Iraqi government showed a warm tendency to modernize its infrastructure because of the damages and conditions of instability in the past years.

In this study, the analyst particularly targeted large and medium-sized organizations since the earlier research reveals that such organizations have higher probabilities of adopting and utilizing the sustainability programs than small firms do (Faccia et al., 2023).

It was necessary to have a clear target population so that the proper elements could be included in the sample frame as indicated by Babbie (2011). Subsequently, participating firms in sustainable construction practices were identified in this research, hence the accuracy of their answers. In order to get more clearer data on qualitative indicators, the questionnaire had filtering questions meant to distinguish between firms that placed a lot of emphasis on sustainability and those that had no or lesser involvement in sustainability patterns. The eligible companies were approached by email and telephone and taken through the purpose of the study and invited to form part of the study. The survey was implemented on a five-month continuum between early April and late August 2023 when the study period was over, and reminders were given periodically to induce participation. The gamma-exponential method (Kock & Hadaya, 2018) was employed to determine the required sample size. Based on this method, a minimum sample size of 146 was necessary, assuming a statistical power of 0.80 and a minimum path coefficient of 0.197. Ultimately, 216 questionnaires were distributed, and 161 valid responses were received, representing a 74% response rate and exceeding the recommended threshold.

3.4 Research Instrument:

A structured questionnaire was used as the primary data collection instrument. The constructs were all measured by previously developed and validated scales that were used in past studies to ensure that they acquired content validity. ORC (6 items) adapted from Becker (1993) and Benkarim & Imbeau (2021); OST (7 items) from Fu et al. (2022); EME (9 items) from Kahn (1990) and Schaufeli et al. (2002); OS (9 items) from Gimenez et al. 2012 and Saadi & Razak (2019); and Human Resource Development (8 items) from Chams & García-Blandón (2019). The rating was done using a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Academic expertise reviewed the given questionnaire, which guarantees its explain ability and a context of being appropriate within the Iraqi organizational context. However, reliability analysis revealed that it was acceptable to exhibit quality of internal consistency towards all the constructs as they were assessed to provide Cronbach alpha values that were above the stipulated value of 0.70 (Pallant, 2020).

3.5 Demographic Characteristics:

Table 1 presents a summary of the respondents' demographic profiles. Among the respondents, 95% were non-business owners, while the remaining 5% identified as owners. Regarding firm size, 78.9% of the respondents represented large companies, while 21.1% were from medium-sized firms. Geographically, 59% of the firms were based in Baghdad, 23.6% in Basra, and 17.4% in Nineveh.

Table 1: Profile of the Respondent

Respondents	Frequency	Percentage (%)
Ownership		
Owner	8	5
Non-Owner	153	95
Size of Organization		
Medium	34	21.1
Large	127	78.9
Location of Organization		
Baghdad	95	59
Basra	38	23.6
Nineveh	28	17.4

Source: Prepared by the Researcher Based on the Analysis Results.

Given these demographic characteristics, this study controlled for ownership status and organization size in the hierarchical regression analysis, as prior research has identified their potential influence on organizational sustainability. For instance, ownership structure can shape strategic direction and decision-making priorities, especially concerning long-term sustainability goals (Gallo & Christensen, 2011; Nwanzu & Babalola, 2019). Similarly, larger organizations typically have greater access to resources, more complex structures, and higher capacity to implement sustainable practices (Ahmić, 2022; Gallo & Christensen, 2011). Therefore, by controlling for these variables, the analysis aims to isolate the true effects of the independent variables on sustainability outcomes.

4. Results and Discussion:

4.1 Descriptive Statistics Results:

Table 2: Summary statistics

Variable	Mean	Std.Dev.	Min	Max
ORC	4.18	0.64	2.80	5.00
OST	4.06	0.61	2.90	5.00
EME	4.23	0.66	2.70	5.00
HRD	4.11	0.59	3.00	5.00
OS	4.27	0.68	2.85	5.00

The source: Prepared by the Researcher Based on the Analysis Results.

Table 2 presents the descriptive statistics for the study's key variables. Each construct was assessed using a 5-point Likert scale, where responses ranged from 1 ("strongly disagree") to 5 ("strongly agree"). The computed mean scores for the five constructs ranged from 4.06 to 4.27, indicating a generally high level of agreement among respondents regarding the measured items.

4.2 Reliability:

Cronbach's alpha was calculated to evaluate the internal consistency of the measurement items. A minimum threshold of 0.70 is generally acceptable for research reliability, while values above 0.80 are preferable (Pallant, 2020). As shown in Table 3, the Cronbach's alpha values for all variables range from 0.803 to 0.952, confirming a high level of internal reliability.

A pilot test was also carried out before data collection in the field to confirm the clarity and relevance of the questionnaire items. The field test included 30 Iraqi construction managers who were not part of the eventual sample. Comments from the participants contributed to the clarification of the wording for a number of items, in order to improve the understandability. The consistency test from the pilot test also indicated Cronbach's alpha being more than 0.70 for all constructs; such as the instrument is fit for the main study.

Table 3: Reliability

Model	Cronbach's Alpha
ORC	0.922
OST	0.803
EME	0.851
HRD	0.914
OS	0.952

The source: Prepared by the Researcher Based on the Analysis Results

4.3 Correlation Coefficient:

The Pearson correlation coefficient was utilized to explore the relationships among variables. Correlation values range from -1.00 to +1.00, with values above 0.5 typically indicating a strong positive relationship (Pallant, 2020). As shown in Table 4, all independent variables (ORC, OST, EME) exhibited significant positive correlations with the dependent variable (OS), with the lowest correlation recorded at 0.499 at the 1% significance level, supporting the presence of strong inter-variable relationships.

Table 4: Correlation coefficient.

	ORC	OST	EME	OS
ORC	1			
OST	0.499 **	1		
EME	0.582**	0.695**	1	
OS	0.555**	0.529**	0.634**	1

The source: Prepared by the Researcher Based on the Analysis Results

4.4 Multicollinearity:

To examine multicollinearity, the Variance Inflation Factor (VIF) and tolerance values were assessed. A VIF exceeding 10 and a tolerance value below 0.10 would indicate problematic multicollinearity (Pallant, 2020). However, the results in Table 5 show that all VIF values were below 10 and tolerance values exceeded 0.10, confirming that multicollinearity was not a concern in this dataset.

Table 5: Multicollinearity Analysis

Model	Collinearity Statistics	
	Tolerance	VIF
ORC	0.266	4.353
OST	0.316	3.381
EME	0.294	4.902
HRD	0.175	5.470

The source: Prepared by the Researcher Based on the Analysis Results

4.5 Hypothesis testing:

This study employed hierarchical regression analysis to assess both the direct effects of ORC, OST, and EME on OS, as well as the moderating role of Human Resource Development (HRD). Aiken's (1991) guidelines, all variables included in interaction terms were mean centered to minimize multicollinearity. Table 6 outlines the regression models used: Model 1 assesses the influence of control variables on OS; Model 2 incorporates the primary independent variables (ORC, OST, and EME); Model 3 introduces the moderator (HRD); and Model 4 includes the interaction terms to test for moderation effects.

Table 6: Hierarchical Regression Analysis Results of Organizational Sustainability.

Variables	M 1	M 2	M 3	M4
Control Variables				
Firm Size	0.11*	0.08	0.06	0.05
Firm Ownership	0.12*	0.10	0.07	0.06
Independent Variables				
Organizational Commitment		0.28**	0.26**	0.25**
Organizational Structure		0.32***	0.30***	0.29***
Employee Engagement		0.29***	0.27**	0.26**
Moderating Variable				
Human Resource Development			0.22**	0.20**
Interactions				
Organizational Commitment x Human Resource Development				0.05†
Organizational Structure x Human Resource Development				0.14**
Employee Engagement x Human Resource Development				0.06†
R2	0.07	0.46	0.53	0.56
△R2		0.39***	0.07**	0.03†
F-Value	4.21*	15.73***	17.89***	16.25***

Note: $p < .10$; *$p < .05$; **$p < .01$; ***$p < .001$.
The source: Prepared by the Researcher Based on the Analysis Results

The results provide empirical support for Hypothesis 1, confirming a significant positive relationship between ORC and OS ($\beta = 0.28$, $p < 0.002$). Similarly, Hypothesis 2 is supported, as OST significantly predicts OS ($\beta = 0.32$, $p < 0.001$). Hypothesis 3 is also validated, indicating a significant effect of EME on OS ($\beta = 0.29$, $p < 0.001$), thus affirming the importance of EME in enhancing organizational sustainability. Regarding the moderating effects of HRD, Hypothesis 4 was divided into three sub-hypotheses: Hypothesis 4a proposed that HRD moderates the ORC–OS relationship, Hypothesis 4b posited a moderation effect between OST and OS, and Hypothesis 4c tested HRD's moderating role in the EME–OS relationship. Among these, only Hypothesis 4b was supported ($\beta = 0.14$, $p < 0.009$), indicating a significant moderating effect of HRD on the OST–OS relationship. However, Hypotheses 4a and 4c were not supported, with non-significant results ($\beta = 0.05$, $p = 0.250$; and $\beta = 0.06$, $p = 0.200$, respectively).

5. Discussion and Implications:

This study builds a theoretical argument grounded in the empirical evidence and supported by the Triple Bottom Line (TBL) theory and Human Resource Development (HRD) theory, confirming the critical role of OB specifically through ORC, OST, and EME in enhancing OS, particularly within construction firms that exhibit strong Human Resource Development (HRD) practices. In doing so, it responds to Raza et al. (2021) call for deeper exploration of OB's influence on sustainability, particularly in underexplored contexts such as Iraq's construction sector. The first key finding demonstrates that organizations exhibiting higher levels of ORC are better positioned to improve sustainability outcomes. By fostering employee well-being and aligning individual goals with organizational objectives, committed organizations promote long-term performance.

Thus, firms that prioritize job satisfaction, employee growth, equitable compensation, and fair distribution of financial gains are more likely to implement sustainable business practices. The second finding confirms a significant positive relationship between OST and OS. The results indicate that formalized organizational structures characterized by centralization, adherence to formal procedures, top-down communication, and clearly defined authority are effective in driving sustainability. Within Iraq's construction industry, a formal structure promotes consistent decision-making and efficient allocation of authority, both of which support organizational continuity and sustainability.

The third key insight highlights the role of EME in promoting sustainability. When employees are fully engaged mentally, emotionally, and physically, they are more likely to contribute to sustainable outcomes. Their intrinsic motivation often drives teamwork, proactive behavior, and a supportive work atmosphere. This finding affirms a significant relationship between EME and OS, suggesting that cultivating comprehensive EME is critical for sustainability efforts. The study also investigates the moderating effect of HRD on the relationships between ORC, OST, EME, and OS. Interestingly, the fourth finding shows that HRD does not significantly influence the link between ORC and OS, implying that HRD initiatives may not amplify the impact of commitment on sustainability in this context. Similarly, the sixth finding suggests that HRD does not significantly moderate the EME–OS relationship, possibly due to underdeveloped HRD strategies that fail to fully support engaged employees in contributing to sustainability. These findings contrast with earlier studies, which positioned HRD as a central moderator. One explanation could be that this study's approach to measuring HRD may not capture its full complexity.

Future research might explore alternative frameworks or consider contextual variables that shape HRD's moderating role. On the other hand, the fifth finding reveals that HRD significantly moderates the relationship between OST and OS. This implies that HRD is very significant in developing and facilitating effective OST, since it provides them with training, development activities, and a knowledge exchange process, especially with the construction business in Iraq, thus enhancing flexibility and sustainability. Therefore, the research adds value to the existing literature of OB, HRD, and OS. However, there is little empirical evidence on these concepts in developing economies, and the proposed study will fill that gap by exploring how they affect OS as well as the contribution of HRD in such processes. In practice, the results can guide the sustainability policy in the construction sector in Iraq, which could lead to the creation of more employment opportunities and the overall development of the economy. This information can be used by the organizational leaders to consider OB as a vehicle in facilitating sustainability at the organizational level, and also to appreciate HRD in developing OST to achieve long-term sustainable results.

6. Conclusions:

The analysis of the implications of OB to OS in construction firms, as applied in this paper, offers some insight into the importance of ORC, OST, and EME. The findings confirm that each of the three components of OB has a substantial direct influence on OS, which proves the strategic role of inner behaviors in facilitating sustainable business. Incidentally, human resource development (HRD) was not significant in moderating relations of ORC and OS or EME and OS. This finding is indicative that as much as OB constructs directly contribute to sustainability, it is possible that HRD could not lead to better relations unless embraced through structural mechanisms. Nevertheless, there was a strong moderating effect in HRD on the OST-OS relationship, implying that the more structured the organization, the more it will benefit when using HRD interventions in the quest for achieving sustainability. Furthermore, the findings align with the concept of the Triple Bottom Line sustainability framework, where OB dimensions were found to be involved in economic, social, and environmental factors of sustainability. They are also in aid of Human Resource Development theory; this is because they underscore the involvement of HRD in augmenting structural mechanisms that influence sustainability.

The negative moderation of some relationships partly refutes the conventional HRD assumptions, which implies that context-specific HRD approaches should be applied. It is therefore recommended that construction firms in Iraq ensure that they not only institutionalize their structures but also invest in HRD programs, which will enhance and boost these structures. Realistically, the companies are advised to improve the level of ORC and engagement by adopting open communication, employee appreciation schemes, and inclusive decision making, and the policymakers should facilitate the HRD activities that formalize the sustainability behavior within the construction industry.

7. Limitations and directions for future research:

As with most empirical studies, this research has several limitations that should be acknowledged, and its findings interpreted accordingly. These limitations also offer valuable avenues for future investigation. First, existing empirical literature offers limited exploration of the relationship between OB and its cumulative impact on sustainability capabilities. This gap restricts the ability to generalize findings across different contexts and limits the depth of theoretical understanding. Future studies are therefore encouraged to further examine this relationship, particularly in diverse organizational and geographical settings. Second, this study employed a quantitative approach, utilizing a structured survey questionnaire for data collection. While this method enables statistical analysis and generalizability, it confines participants to predefined response options, potentially limiting the depth of insight. Future research could incorporate qualitative methods, such as interviews or case studies, to gain a richer understanding of the dynamics explored in this study. Third, the sample was limited to construction companies operating in Iraq, with no inclusion of firms from other industries. This sector-specific focus may constrain the applicability of the findings to other organizational contexts. Future studies may broaden the scope by examining companies in other sectors such as agriculture, telecommunications, and banking. Replicating the current model in these different contexts could validate or challenge the generalizability of the observed relationships. Lastly, this study considered only Human Resource Development (HRD) as a moderating variable. Future research could explore alternative moderators that may influence the relationships between OB components and organizational sustainability. This would allow for a more nuanced understanding and potentially yield more robust findings within the proposed research framework.

Authors Declaration:

Conflicts of Interest: None

-We Hereby Confirm That All The Figures and Tables In The Manuscript Are Mine and Ours. Besides, The Figures and Images, which are Not Mine, Have Been Permitted Republication and Attached to The Manuscript.

- Ethical Clearance: The Research Was Approved by The Local Ethical Committee in The University.

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