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**Article**

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## INFORMATION & TECHNOLOGY MANAGEMENT | RESEARCH ARTICLE

# Intellectual capital dimensions and employee performance: The mediating role of organizational learning

Sawasn Al-Husseini<sup>1\*</sup>

**Abstract:** Intellectual capital is recognized as the most important driver of economic development and the key to enhancing innovation and performance. This research seeks to examine the impact of intellectual capital (human, relational, and structural) on employee performance through the mediating role of organizational learning. The study surveyed 438 managers based in Iraqi banks. A model was developed and conditional hypotheses were tested using structural equation modeling with AMOS. The results show that the three components of intellectual capital (human, relational, and structural capital) improve employee performance and that organizational learning mediates the relationship between intellectual capital and employee performance. The research gave evidence to support the use of intellectual capital and organizational learning to enhance the performance of the employee within banking sector in developing countries, particularly Iraq.

**Subjects:** Organizational Communication; Business, Management and Accounting; Information Technology

**Keywords:** intellectual capital; organisational learning; employee performance

### 1. Introduction

Modern organizations operate in a complex environment characterized by global challenges due to rapid changes in information technology, market uncertainties, shortened product life cycles, and increased demand (Kim, 2020). Under such circumstances, performance has become a fundamental requirement for the achievement of sustainability, survival, and growth (Peiró et al., 2020). Indeed, employee performance (EP) describes the level of ability of an individual to perform a specific task (Swanson et al., 2020). Thus, enhancing EP serves a major role in transforming the actions of employees into productive services, which enhance organizational competitiveness (Abdelwahed et al., 2023). Although, most of the studies have focused on the importance of individual performance, still, studies on the antecedents and consequences outcomes of it are rare (Swanson et al., 2020).

### ABOUT THE AUTHOR

Sawasn Jawad Al-Husseini is currently an assistant professor at Middle Technical University, Institute of Administration Rusafa, Baghdad, Iraq. She received her PhD degree in management information systems (MIS) from Plymouth University, School of Management, Plymouth, UK. Dr. Al-Husseini's publications are related to the innovation, leadership style, knowledge management, knowledge sharing, and intellectual capital, she has many papers published at national and international journals and conferences.

In this era of knowledge-based economies, intangible resources and competencies are crucial if firms are to survive in dynamic environments (Chen & Nonaka, 2022). According to Xu and Li (2019) intellectual capital (IC) can enhance the EP in the workplace and creating value for organizations. IC consists of knowledge-related intangible assets, which both generate innovation and raise organizational performance (Ozgun et al., 2022). Alrowwad et al. (2020) indicated that IC is the stock of collective knowledge, information technologies, experience, cooperation, interaction among employees, and copyrights that can create organizational value. It includes three components: human capital (HC) (employees' talent, education, and experience), structural capital (SC) (organizational capabilities, information systems, and databases), and relational capital (RC) (formal and informal relationships among employees and with customers) (Farzaneh et al., 2022). Bontis et al. (2015) noted that the synergetic value of IC is rooted in the interaction between its different components. Thus, the first objective of this study is to analyze the interrelationship among IC components.

According to Zhang et al. (2022), IC can facilitate value creation and extraction for an organization through the utilisation of knowledge embedded in organizational staff, infrastructure, and relationships. The Knowledge-based View (KBV), argues that the ability of employees to successfully enhance their performance depends on the knowledge, skills, and other capabilities of them such as personal networks, values, intellect, and talent (Chen & Nonaka, 2022). Alrowwad et al. (2020) noted that organizations invest its IC through their employees, communications, and processes and leverage it to foster the performance of their employees. Therefore, the second objective of the study is to investigate how IC components influence the performance of the employee.

According to Sardo et al. (2018) there is a need to identify mechanisms between IC and performance. Therefore, this study argues the mediating role of organizational learning (OL).

OL generates novelty in products, procedures, and systems leading directly to better performance (Antunes & Pinheiro, 2020). It's described as the process of improving actions through better knowledge and understanding (Ali et al., 2020). Learning ability, the act of seeking knowledge or skills can stimulate organizational innovation and maintain a firm's competitive advantage in turbulent environments (Bašić, 2021). Therefore, OL is needed in the organizations to increase strategic capability, enabling them to sustain a position of competitive advantage and improve their results (Antunes & Pinheiro, 2020). As these attitudes, behaviors, and strategies of OL will guide organizations to better performance. Thus, the third objective of the study is to examine how OL enhance EP.

Prior literature is well documented the association between IC and performance (Alrowwad et al., 2020; Ozgun et al., 2022). OL has been rarely considered in a single model, despite the concept is considered critical in different contexts (Hussein et al., 2016) specifically, in the banking industry. As this sector, its activities tend to involve work of an intellectual nature that rests on intangible assets such as knowledge (Oppong & Pattanayak, 2019).

Although the relationship between IC and performance has been addressed in several context (Huang & Huang, 2020; Xu & Li, 2022). An analysis of the mediating role of OL on the relationship between IC and performance from individual level has not been conducted yet, and the results remain inconsistent and thus inconclusive. In particular, studies in developing countries, specifically Iraq, are scarce. Examining the extent to which IC affects EP via OL in banks in Iraq is important for managers and decision-makers of banks facing pressure to innovate by enabling them to overcome the barriers that prevent the development of performance among their employees and contribute to develop management strategies that will work best for the sector. Therefore, the fourth objective is to examine the mediating role of OL between IC and EP.

The remainder of this paper is organized as follows. The next section describes the theoretical background and a review of previous research on the linkages between IC, OL, and EP and the

development of the hypotheses. The third section discusses the data sources, research method, and framework. The fourth section interprets the findings and provides their implications for the Iraqi banking sector as well as offers recommendations for future research.

## 2. Literature review and hypotheses development

### 2.1. Intellectual capital

Organizations mainly depend on intangible assets such as knowledge and IC to reinforce innovation and raise performance (Kucharska, 2022). Castro et al. (2019) described IC as all an organization's capabilities, knowledge, culture, process, intellectual property, and relational networks that create value and help it to achieve its goals and gain a sustainable competitive advantage.

Prior literature has identified three main components of IC: human, relational, and structural capital (Ahmad et al., 2022). HC refers to the knowledge, skills, technical expertise, experience, attitude, commitment, wisdom, and abilities residing within, and used by, individuals (Bontis et al., 2015). The knowledge embedded in the minds of employees helps them not only perform their jobs but also absorb and create new knowledge and value for the organization (Ozgun et al., 2022). HC is the main body of intellectual capital (i.e., the most important firm asset) and that it contributes to organizational productivity and generates value for the firm (Pasamar et al., 2019). It can produce creative ideas and increase the organization's innovation, thus generating organizational value, which raises customer satisfaction and loyalty (Khaliq et al., 2018).

Akhavan and Hosseini (2016) found that RC is a valuable resource derived from the network of relationships among employees and organizations. This knowledge is embedded in the social relations and networks among individuals, organizations, and social units, providing a basis for cooperation and a mechanism for knowledge sharing within an organization (Bontis et al., 2015). RC represents the quality of relationships as well as the ability to create partner satisfaction and trust and customer/employee loyalty (Ganguly et al., 2019). It also refers to the development of respect and friendship among individuals, which influences their behavior (Ozgun et al., 2022). It can increase organizational learning by sharing knowledge, via trust and cooperation, which in turn improves the innovative performance of the organization (Liu et al., 2022).

SC refers to the knowledge stored in and used by the organization's processes, procedures, systems and manuals, capabilities, databases, hardware, software, trademarks, images, copyrights, and patents (Farzaneh et al., 2022). It goes beyond individuals and their relationships and involves forming formal procedures and managerial routines for storing knowledge (Kucharska, 2022). SC is related to the organizational structure and systems that support employees' productivity and it remains in the organization even when employees leave (Bontis et al., 2015). Hence, this stock of knowledge is owned by the organization; it includes the corporate culture, information technology, and explicit knowledge used to solve problems and innovate (Ozgun et al., 2022).

According to Hsu and Fang (2009) managerial activities related to intellectual capital should complement each other. They have a reciprocal relationship and their collaboration in the generation of knowledge value creates synergies (Bontis et al., 2015; Zhang et al., 2022). These interactions among the IC elements of an organization are additive in that the value of one element is increased by the presence of the other elements (Kucharska, 2022).

HC is a pivotal component of IC and a driving force for relational and structural capital (Pasamar et al., 2019). Through HC and social contact, organizations can improve their performance and creativity (Farzaneh et al., 2022). It can help to generate relational and structural capital (McDowell et al., 2018). Oliveira et al. (2020) considered RC as a consequence of HC. Ahmad et al. (2022) indicated that HC is required to establish the databases in the organization which is the core of SC. It has been asserted that the efficiency of SC in the organization depends on the extent to which an organization possesses highly competent employees (Liu et al., 2022). Similarly,

Kucharska (2022), noted that SC includes all non-human stores of knowledge in organizations, it is related to the organizational processes and infrastructure that support and empower HC. Moreover, SC can gather knowledge that is stored in the minds of the employees (Liu & Jiang, 2020). Hence, HC and SC are interdependent and interact to create IC (Sardo et al., 2018). Ganguly et al. (2019) argued that the organizations has the ability to transform employees' knowledge into organizational knowledge. Therefore, managers should perse their employees to codify their knowledge in the databases of the organization to make it available to their colleagues (Huang & Huang, 2020).

McDowell et al. (2018) asserted that RC is complementary to HC and SC, as it enhances interactions with stakeholders. RC can also facilitate knowledge sharing among employees, which sustains SC (Kucharska, 2022). It's argued that there is a positive relationship between RC and SC because informal relationships are considered useful tools for decision-makers (Liu et al., 2022). Ganguly et al. (2019) described the interactions among the employees and with customers can generate more information, which in turn builds an accumulation of SC. As a result, organization can transfer SC into added value if they have good relations with customers (Ahmad et al., 2022). Moreover, RC can enhance the SC's interaction with the stakeholders and influences stakeholders' perceptions of the organization such as bank image, commercial power and reputation (Meles et al., 2016). It was found that this kind of IC (RC) can allow the organizations to develop their databases with information of external stakeholders in order to anticipate and develop future organization's strategies (Sardo et al., 2018). Based on the above discussion, this research proposes:

**H1:** Human capital has a positive influence on structural capital.

**H2:** Human capital has a positive influence on relational capital.

**H3:** Relational capital has a positive influence on structural capital.

## **2.2. Intellectual capital and employee performance**

Qalati et al. (2022) found that job performance is significant for organizations to gain competitive advantage and raise productivity. It can be defined from the perspective of behavior or outcomes. Behavioral aspect refers to what an individual does in their work situation and is relevant to organizational goals (Abdelwahed et al., 2023), while the outcome aspect refers to the consequences and results of the individual's behavior and can be influenced by environmental factors.

The two main types of employee performance are task performance and contextual performance (Motowidlo & Van Scotter, 1994). *Task performance* refers to the technical skills and knowledge needed to produce goods and services through the organization's core technical processes or when the employee meets their role requirements and achieves their task goals. According to Abdelwahed et al. (2023), the activities that relate to this type of job performance include organizational members adequately completing their assigned duties and fulfilling the responsibilities specified in their job description. Proficiency includes elements such as work quality (i.e., accuracy, and technical mastery), the amount of work done (i.e., what an employee can accomplish in normal circumstances and the speed with which they carry out this work), knowledge of and compliance with job requirements (i.e., technical, theoretical, and professional skills), and perseverance and reliability (i.e., seriousness, and the ability to take responsibility and accomplish work in a timely fashion). On the contrary, *contextual performance* referred in the literature as citizenship behavior (Motowidlo & Van Scotter, 1994). It includes the employees' behaviors in the organizational, social, and psychological contexts in which the key technical tasks are performed (Qalati et al., 2022). Researchers have proposed that contextual performance is comprised of interpersonal facilitation and job dedication (Borman & Motowidlo, 1997). It consists of activities that improve morale, encourage cooperation, remove barriers to performance, maintain good working relationships, and help co-workers perform their task-oriented job activities (Scotter,

2000). For contextual performance, employees could offer ideas to improve the functioning of the organization and take action to protect the organization from potential problems (Motowidlo & Van Scotter, 1994). Peiró et al. (2020) also found that contextual performance behaviors involving persistence, effort, compliance, and self-discipline are expected to increase the effectiveness of employees and managers.

IC has been found as an important asset that organizations utilize to achieve a competitive advantage (Ozgun et al., 2022). According to the resource-based view (RBV), which recognizes that IC is the main strategic asset in an organization and the most important resource for supporting the performance, growth, survival, and social development of the organization because it is likely to be rare, valuable, non-substitutable, and not easily imitated (Farzaneh et al., 2022).

EP require knowledge, skills, and capabilities of IC. Based on KBV theory, which extends from the RBV assumes that knowledge is a valuable and unique resource of organizations and suggests that knowledge emanates from individuals (Chen & Nonaka, 2022). It's argued that through HC, the organization applies abilities and skills to integrate creative ideas and increase its innovation, with or without employee engagement (education, skill, and training to generate organizational value), which in turn increases satisfaction, loyalty, and task and contextual performance (Ozgun et al., 2022). organizations whose HC comprises unique, or tacit knowledge achieve high productivity (McDowell et al., 2018).

RC represents the collaborations, and norms of reciprocity that exist in the interactive relationships among employees (Bontis et al., 2015). It includes common cultural norms, effective interactions, mutual trust, and personal relationships (Akhavan & Hosseini, 2016). Based on KBV, organizations are as repositories of knowledge that embedded in organizational processes, competences, and relationships (Chen & Nonaka, 2022). Therefore, it can be employed to justify the relationship between RC and performance. Through RC, organizations can build relationships with customers, find new ways to do business, and become innovative (Allameh, 2018). RC is the relationship knowledge that focuses on knowledge which is produced from the relationships between an organization's employees and its customers (Xu & Li, 2022). Relationship knowledge is reflected by an ability to collaborate effectively. According to Ganguly et al. (2019) common values and trust in a network not only resolve conflicts but also improve communication and coordination between members, thereby, facilitating knowledge sharing, skills, new ideas among them. These characteristics are vital for enhancing the performance of the employees.

Huang and Huang (2020) indicated that SC focuses on organizational efficiency; covers the systems, practices, and processes of an organization; and involves non-physical components such as databases and business strategies. It therefore, represents the unique knowledge institutionalized and codified by a firm through its policies, procedures, and management structures (Allameh, 2018). According to Xu and Li (2022) the KBV theory confirms that intangible resources like SC is the key driver of innovation performance. organizations may lose both human and relational capital due to employees' turnover. This, however, is avoidable if organizations can transform employees' tacit knowledge and social relationships into SC like information systems (Farzaneh et al., 2022). Using such structural components as information and communication technology can, for example, reduce the costs and enhance the profitability of the organization (McDowell et al., 2018).

Previous studies have reported that IC is an antecedent of performance. For instance, Ozgun et al. (2022) suggested that the organizational performance is attained by organizations that could mobilize their intellectual assets in the shape of knowledge, technological skills, experience as well as strategic competencies. Results from Alrowwad et al. (2020) study found that the interactions among employees help them break down the limitations of knowledge search and renew their knowledge base, which provides a high-quality source of motivation for performance. Huang and



Huang (2020) showed that IC partially mediates the relationship between organizational capabilities and organizational performance in Taiwan. Thus, this research suggests:

**H4:** Intellectual capital in the form of human capital (H4a), relational capital (H4b), and structural capital (H4c) improves employee performance

### 2.3. Intellectual capital and organizational learning

OL plays a key role in enabling organizations to innovate with speed and flexibility, which can help organizations improve their performance and strengthen their competitive advantage (Antunes & Pinheiro, 2020). OL is described as the process of improving actions through better knowledge and understanding (Bašić, 2021). It is related to the capacity of an organization to change and improve continuously by solving existing problems (Farzaneh et al., 2020).

According to Mai et al. (2022), there are four components of OL, namely, knowledge acquisition, information distribution, information interpretation, and organizational memory. *Knowledge acquisition* refers to the process organization use to obtain new information and knowledge. It is related to learning from experience, observation, and grafting and can develop skills, insights, and organizational relationships. Knowledge acquisition consists of direct and indirect interactions with knowledge sources such as suppliers, buyers, and other organizations (Alghaila et al., 2017). Acquiring knowledge from the external environment can increase the organization's ability to create and absorb new knowledge, which serves as competitive advantage and boosts innovation (Maravilhas & Martins, 2019). It is also argued that acquiring knowledge from internal and external sources provides opportunities to combine existing knowledge with new information, particularly the knowledge essential for boosting creativity (Alzghoul et al., 2018). *Information distribution* refers to the process by which employees share new information among members and organizations (Vashdi et al., 2019). It focuses on how departments that possess information and those that need this information can find each other quickly. Maravilhas and Martins (2019) indicated that information distribution is a prerequisite for OL, as it allows the organization to internalize new and relevant knowledge. It's argued that the combining information from different subunits leads not only to new information, but also to new understanding (Mai et al., 2022).

*Information interpretation*, arises when individuals give meaning to and transform information into new common knowledge. It's the process of translating events and developing shared understandings and conceptual schemes (Farzaneh et al., 2020). New information interpretation is affected by cognitive maps possessed by the organizational units, the richness of the media used to convey the information (Mai et al., 2022). *organizational memory* refers to the process of storing information and knowledge for future use and decision making (Vashdi et al., 2019). Firms use their existing knowledge, routines, and experience to find incremental solutions quickly and cheaply (Ali et al., 2020). According to Farzaneh et al. (2020) organizational memory can take forms such as storing and retrieving information and computer-based organizational memory.

Prior literature has identified HC as a crucial foundation for OL (Pasamar et al., 2019). It represents the set of values, attitudes, and capabilities of employees that allow organizational values to be generated (Bontis et al., 2015). It argued that OL depends on the exchange and integration of extant information, knowledge, and ideas by employees (Antunes & Pinheiro, 2020). According to Cabrilo and Dahms (2020) employees who possess broad sets of skills increase organizational flexibility and have potential adaptability to search for, assimilate, and recombine new knowledge across a broad range of knowledge domains, which is the core of learning process. Hussein et al. (2016) noted that characteristics such as skills, motivational factors, and education for the organizational members can influence OL through the questioning and sharing of knowledge. High HC enables employees to acquire new knowledge and improve their skills, which opens the opportunity to develop learning capability (Vashdi et al., 2019).



According to Kucharska (2022) the increasing of social interaction and mutual trust among members, will help them to bolster their skills and problem-solving capabilities and encourages them to seek new knowledge, which in turn enhances their capabilities in learning. Cabrilo and Dahms (2020) noted that RC is a key determinant of OL in organizations because of its ability to acquire and build new knowledge, disseminates it throughout the organization and institutionalize it in organizational memory. It's facilitate the learning of employees by providing them more opportunities for learning from others such as mentoring and coaching, which in turn increase their abilities to create new learning mechanisms (Hussein et al., 2016). When organizations build an environment of collaboration among employees, different departments, and units, they are more likely to encourage them to work together and share their know-how and work experience, which enhances the acquisition of external knowledge (Antunes & Pinheiro, 2020).

Bontis et al. (2015) pointed out that SC (e.g., databases, procedures, and information systems) represents the valuable intangible assets that employees cannot take with them when leaving work at the end of the day or, ultimately, the organization. Building databases enhances OL and reduces the costs of decision making (Ozgun et al., 2022). Proper routines, as a collaboration mechanism, can increase the social ties of employees, thus inducing knowledge exchange and combination (Akhavan & Hosseini, 2016) Members may then be willing to acquire, share, and request more knowledge from/with others in an organization that supports systems and processes (Ganguly et al., 2019). When employees establish a database for sharing and saving their knowledge, they are more likely to improve the OL capability, which in turn reduces the costs of decision making and misjudgment due to insufficient information (Antunes & Pinheiro, 2020)

Prior literature is well documented about the association between IC and OL (Cabrilo et al., 2020; Pasamar et al., 2019). Results from Sumanarathna et al. (2020) study suggested that the organizations that encourage the cooperation among employees, they likely to increase their willingness to share their tacit knowledge with co-workers. Farzaneh et al. (2022) found SC can enhance absorptive capacity of employees, and helps them to identify and exploit new knowledge for innovation performance. Based on the above discussion, this research proposes:

**H5:** Intellectual capital in the form of human capital (H5a), relational capital (H5b), and structural capital (H5c) improves organizational learning.

#### **2.4. Organizational learning and employee performance**

OL is essential to compete in the global marketplace (Antunes & Pinheiro, 2020). According to Mai et al. (2022) the processes contributing to OL are knowledge acquisition, information distribution, information interpretation, and organizational memory. The KBV theory recognized that the role of knowledge, as a valuable resource in innovation, has emerged an important area in enhancing performance and an important approach to OL (Chen & Nonaka, 2022). According to Abdelwahed et al. (2023) performance occurs when employees acquire knowledge from external and internal recourses, share it, and creates novel insights about innovation that enhance task and contextual performance. organizations may build the learning culture through participating their employees in decision-making activities and exert some control over their careers and development (Farzaneh et al., 2020). From this approach, performance is one of the individual and organizational consequences of OL. When knowledge and information is acquired, interpreted, and shared, employees can access intellectual resources and develop the competencies essential for their job-related performance (Mai et al., 2022).

Like IC, OL is another antecedent of EP, for instance, Imani et al. (2020) suggested that managers who give the priorities to share norms and values of learning would likely affect employees' behaviour toward an organization's objectives, which, in turn lead them to a successful performance. Meanwhile, Cabrilo and Dahms (2020) asserted that such elements of OL as experimentation, interaction, risk, and dialogue can improve performance. Additionally, Ali

et al. (2020) found a positive relationship between OL and performance through mediating the role of capabilities in the United Kingdom and Pakistan. Accordingly, this research proposes:

**H6:** organizational learning improves employee performance.

### **2.5. The mediating effect of organizational learning on the relationship between intellectual capital and employee performance**

IC may enhance performance by increasing the employee's ability to seek and acquire new knowledge and techniques that go far beyond existing experience (Cabrilo & Dahms, 2020). Enhancing EP requires staff with a high quality of knowledge, experience, and skills, good relationships among them, and the creation of new customers as well as technological capacities (Huang & Huang, 2020).

OL can increase the quantity and quality of employee contributions to organizational goals and performance level (Mai et al., 2022). It is the capability for an organization to improve performance based on knowledge acquisition, information distribution, information interpretation, and organizational memory (Antunes & Pinheiro, 2020).

Prior literature has argued that IC does not directly affect performance but is translated by learning capabilities of employee (Farzaneh et al., 2022). Accordingly, enhancing EP cannot be ensured by IC alone. Rather, performance occurs through knowledge sharing and recombination, which involves the reuse of prior or existing knowledge. Organizational members (HC) with high valuable and unique knowledge and skills do more to promote the process of organizational learning by acquiring and generating new ideas; exploring new ways of working and converting them into new organizational routines (Pasamar et al., 2019). Through relational capital, employees can increase their relationships, networks, trust and cooperation among them and with customers, this may exhibit better information acquisition and resource allocation (Sumanarathna et al., 2020). Focusing on structural capital through establishing bank databases and information technology systems, organization can share more knowledge and improve its learning capability (Farzaneh et al., 2020). Accordingly, the acquisition and utilisation of external knowledge associated with the capabilities of employees leads to improve their task and contextual performance. Thus, the current study posits that the development of IC in organization can help extract valuable and novel knowledge from external and internal sources, acquire necessary knowledge, and reconfigure processes to provide superior performance. Consequently, this research suggests (see Figure 1):

**H7:** Organizational learning mediates the relationship between intellectual capital and employee performance.

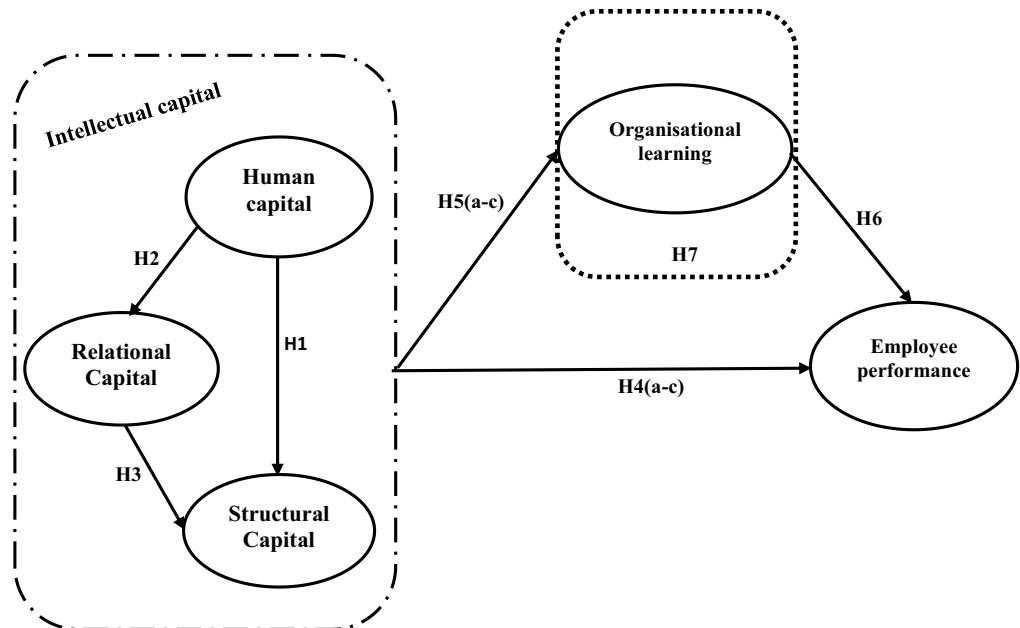
## **3. Research method**

A quantitative approach was used to test the hypotheses by examining the causal relationships among the variables. A self-administered questionnaire was developed to test the model; all the items were measured using five-point Likert scales ranging from 1 representing "strongly disagree" to 5, "strongly agree." The original English questionnaire was translated into Arabic using the back-translation procedure. The two English-language questionnaires were then compared by the two translators. Some discrepancies in meaning were found in their discussion, and the Arabic version was then refined with the help of the two translators (Saunders et al., 2019).

### **3.1. Measurements**

A multi-item scale was used in this research to measure the variables as see in the appendix. IC was measured by 16 scale items taken from Bontis (1998), Subramaniam and Youndt (2005), and Leana and Pil (2006) and modified to be suitable for the Iraqi context. Six items on employees' skills, education, and expertise were used to measure HC. RC was gauged using six items relating to the social interactions and relationships among employees. SC was operationalized as plant's standard operating procedures, written processes and rules, manuals, and databases (four items).

**Figure 1. The hypothesized model.**



OL was measured using 16 items taken from Lopez et al. (2004), covering the four sub-processes of knowledge acquisition, information distribution, information interpretation, and organizational memory.

EP was measured using six items drawn from (Williams & Anderson, 1991) and (Borman & Motowidlo, 1997) referring to the extent to which employees achieve their goals related to their work duties and volunteering to perform tasks outside one's and role or helping others.

### 3.2. Sample and procedures

The study population for this research consisted of branch and department managers of public and private banks in Iraq registered in the Ministry of Finance's databases and asked to rate their employees. Studying a sample of bank managers offers several advantages. Banking is one of the most competitive and efficient sectors in the Iraqi economy and is knowledge-intensive companies, as the majority of their activities are of an intellectual nature. Because the banking industry is IC-intensive, human, structural, and/or relational capital must play a crucial role. Employees are one of the most important assets of banks and a source of competitive advantage because of their expertise and knowledge-creating and sharing activities (Meles et al., 2016).

According to the annual report of the Ministry of Finance, there are seven main public banks and 23 private banks in Iraq. Table 1 shows that 157 of the public banks and 23 of the private banks in Iraq are located in Baghdad. Bank branches in Baghdad were selected as the sampling frame because the concentration of banks and variety of branches in the city meant there would be sufficient managers to whom to distribute the questionnaire. Stratified random sampling was used, as it is accurate, easy, divisible into relevant strata, and inexpensive (Saunders et al., 2019). The population size was 2198 for the public banks and 157 for the private banks in Baghdad. A required precision level of 7% and a 95% confidence level would yield a required sample of 200 managers of public banks and 121 of private banks (Glenn, 2003). Hair and Babin (2018) asserted that in structural equation modeling (SEM), the sample size should be greater than 100 to provide satisfactory statistical power. Thus, according to the above, the sample size was deemed to be acceptable for the current research.

The questionnaires were distributed using an Internet survey and the delivery and collection method. A total of 500 questionnaires were administered to the public banks and 200 to the private banks, with 389 (77.8%) and 172 (86%) responses, respectively. Of these, 276 from the public banks and 162 from the private banks were usable. After removing incomplete questionnaires and the invalid responses such as selecting the same answer for all questions.

Over half (54%) of the managers of the public banks were women compared with only 40% for the private banks. In terms of academic qualifications, in the public banks, 68% had bachelor's degrees compared with 45% in the private banks, while 32% in the public banks and 55% in the private banks had advanced degrees. A t-test was used to test for non-response bias by comparing the differences between early and late respondents. The t-test of the mean differences was insignificant at the 5% level, confirming there was no non-response bias (Hair & Babin, 2018).

#### 4. Data analyses and results

SEM was applied using AMOS to test the impact of IC on EP through the mediating role of OL. It establishes a measurement and a structural model to analyze the relations between factors. The measurement model addresses and evaluates the reliability and validity of the indicators for measuring the hypothetical constructs. The structural model addresses the relations among the unobserved variables, specifying the direct and indirect links among them (Hair & Babin, 2018).

##### 4.1. Measurement model analysis

Confirmatory factor analysis (CFA) was used to evaluate the measurement model in this research. The measurement model specifies the correlations between the factor loadings of the observed variables and latent variables (Hair & Babin, 2018). The validity of the measurement model depends on establishing acceptable levels of goodness of fit for the model and finding evidence of construct validity (Hair & Babin, 2018). Five constructs (HC, RC, SC, OL, EP) were measured for both sets of data (public and private Iraqi banks, with 438 observations) using 38 items.

**Table 1. Public and private banks in Iraq by geographical area**

City	Public banks		Private banks	
	Number of banks	%	Number of banks	%
Baghdad	157	36.0	23	100%
Salahaddin	17	3.8	-	-
Al-Mousel	32	7.2	-	-
Al-Basrah	30	7.0	-	-
Al-Najaf	23	5.2	-	-
Al-Qadisiya	17	3.8	-	-
Al-Anbar	24	5.4	-	-
Babylon	24	5.4	-	-
Diyala	17	3.8	-	-
Karbala	22	5.0	-	-
Thi-Qar	19	4.3	-	-
kirkuk	16	4.0	-	-
Wasit	14	3.1	-	-
Mysaan	15	3.4	-	-
Al-Muthanna	8	1.8	-	-
Arbil	2	0.4	-	-
Al-Sulaymaniyah	2	0.4	-	-
Total	439	%100	23	%100

The model was evaluated for convergent validity by investigating the factor loadings and average variance extracted (AVE), both of which should be 0.5 or higher (Hair & Babin, 2018). Reliability was assessed separately for each dimension included in the model, based on the Cronbach's alpha and composite reliability (CR) scores, each of which should exceed 0.7 to be statistically reliable (Hair & Babin, 2018). Table 2 shows that the convergent validity and internal reliability were satisfactory. All the factor loadings as well as CR and the AVE were acceptable and significant.

Discriminant validity was also evaluated to measure internal consistency, which refers to the extent to which a construct is truly distinct from the other constructs (Hair & Babin, 2018). Table 3 shows that the square root of the AVE for each construct (diagonal entries in bold) was larger than the correlations of that construct with all the other constructs, as depicted in the off-diagonal entries, thus suggesting adequate discriminant validity. Additionally, it displays the means and standard deviations.

The indices in Table 4 were used to evaluate the measurement model. These included the fit indices of  $\chi^2/df < 3.0$ , the goodness-of-fit index (GFI)  $\geq 0.90$ , and the root mean squared error of approximation (RMSEA)  $\leq 0.08$  as well as the incremental fit measures of the normed fit index (NFI)  $\geq 0.90$  and comparative fit index (CFI)  $\geq 0.90$ . Table 4 shows the results, which suggest a good fit for the measurement model and that the model fits the sample data for Iraqi banks.

#### 4.2. Structural model analysis

The results of SEM for the structural model show that the GFIs indicated adequate levels (see Table 5 and Figure 2). The path coefficients of  $H1(\beta = 0.506, t\text{-value} = 10.783, P < 0.01)$ ,  $H2(\beta = 0.742, t\text{-value} = 11.346, P < 0.01)$ , and  $H3(\beta = 0.489, t\text{-value} = 9.784, P < 0.01)$  were confirmed, indicating that these three hypotheses are supported.

$H4a-c$  concerns the effect of IC (human, relational, and structural) on EP. Table 5 shows an overall effect of ( $\beta = 0.280, t\text{-value} = P < 0.05$ ) with sub-effects of  $H4a$  ( $\beta = 0.325, t\text{-value} = 3.160, P < 0.01$ ) for HC. RC:  $H4b$  ( $\beta = 0.362, t\text{-value} = 3.640, P < 0.01$ ), and  $H4c$  ( $\beta = 0.213, t\text{-value} = 2.065, P < 0.05$  for the SC, thus  $H4a-c$  are supported.

$H5a-c$  concern the direct effect of IC on OL. Table 5 shows an overall effect size of  $H5(a-c)(\beta = 0.642, t\text{-value} = 10.810, P < 0.01)$  with sub-effects of HC:  $H5a(\beta = 0.468, t\text{-value} = 11.300, P < 0.01)$ , RC  $H5b(\beta = 0.587, t\text{-value} = 10.680, P < 0.01)$  and SC  $H5c(\beta = 0.431, t\text{-value} = 9.784, P < 0.05)$ ; thus,  $H5a-c$  are confirmed. The table also shows an effect size of OL on EP of ( $\beta = 0.750, t\text{-value} = 14.820, P < 0.01$ ) providing support for  $H6$ . The fit indices for the structural model show a good fit to the data for the direct effect, as shown in Table 5.

Table 6 shows that OL has a partial mediating effect on the relationship between IC and EP. Both the direct and the indirect effects of IC on EP are significant at the 5% level, confirming  $H7$  with a stronger indirect effect of ( $\beta = 0.492$ ) over the direct effect of ( $\beta = 0.280$ ).

The squared multiple correlation (SMC) is equivalent to ( $R^2$ ) in multiple regression analysis and represents the amount of variance in a dependent variable explained by the group of predictors (Byrne, 2016). The predictors IC and OL have reasonable overall predictive power for the dependent variable, with 0.62 of the variance being explained by the proposed structural model, while the SMC without OL explains 0.48 of the variance, so that  $\Delta SMC = 0.14$ .

#### 5. Discussion

This research investigated the direct and indirect effects of intellectual capital on employee performance through the mediating role of organizational learning in the banking sector in Iraq. The SEM results support the hypothesized relations, as discussed below:

**Table 2. Results of confirmatory factor analysis**

Factor	Item code	Loading	$\alpha$	AVE	CR
Human capital	HC1	0.866	0.90	0.69	0.92
	HC2	0.887			
	HC3	0.750			
	HC4	0.842			
	HC5	0.900			
	HC6	0.754			
Relational capital	RC7	0.878	0.90	0.71	0.91
	RC8	0.890			
	RC9	0.781			
	RC10	0.860			
	RC11	0.790			
	RC12	0.856			
Structural capital	SC13	0.843	0.89	0.69	0.90
	SC14	0.865			
	SC15	0.789			
	SC16	0.843			
Knowledge acquisition	KA17	0.823	0.89	0.66	0.88
	KA18	0.850			
	KA19	0.799			
	KA20	0.779			
Information distribution	ID21	0.845	0.88	0.76	0.90
	ID22	0.908			
	ID23	0.876			
Information interpretation	II24	0.820	0.86	0.70	0.87
	II25	0.798			
	II26	0.889			
Organizational memory	OM27	0.855	0.92	0.70	0.93
	OM28	0.808			
	OM29	0.765			
	OM30	0.876			
	OM31	0.834			
	OM32	0.887			
Employee performance	EP33	0.747	0.90	0.66	0.91
	EP34	0.898			
	EP35	0.753			
	EP36	0.860			
	EP37	0.845			
	EP38	0.781			

Note: AVE = average variance extracted, CR = composite reliability,  $\alpha$  = Cronbach's alpha, N = 438.

HC (H1 and H2) is found to enhance structural and relational capital, while RC significantly affects SC (H3). HC refers to the processes associated with education, training, and other career plans aimed at increasing the knowledge, skills, and social assets of an employee. When an organization employs highly skilled individuals, this can improve organizational processes, increase efficiency, and enhance the corporate culture. A bank has the ability to transform individuals' knowledge into organizational knowledge. Managers should persuade their employees to codify



**Table 3. Descriptive scales, correlation matrix, and AVE**

<b>Factor</b>	<b>Mean</b>	<b>SD</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>
1-Human capital	3.389	0.980	<b>0.69</b>							
2-Relational capital	3.462	0.885	0.546**	<b>0.71</b>						
3-Structural capital	3.360	0.890	0.543**	0.660**	<b>0.69</b>					
4-Knowledge acquisition	3.471	0.882	0.568**	0.589**	0.614**	<b>0.66</b>				
5-Information distribution	3.442	0.854	0.432*	0.520**	0.489*	0.390*	<b>0.76</b>			
6-Information interpretation	3.352	0.876	0.361*	0.455*	0.314*	0.480*	0.368*	<b>0.70</b>		
7-Organizational memory	3.401	0.897	0.468*	0.469*	0.499*	0.367*	0.482*	0.340*	<b>0.70</b>	
8- Employee performance	3.374	0.976	0.420*	0.576**	0.611**	0.530**	0.436*	0.320*	0.457*	<b>0.66</b>

Note: SD = standard deviation, p\* < 0.05, p\*\* < 0.01, N = 438

**Table 4. Goodness-of-fit measures**

Fit indices	Intellectual capital	organizational learning	Employee performance	Recommended cut-off value
$\chi^2/df$	1.222	1.324	1.770	$\leq 2-5$
GFI	0.975	0.986	0.953	$\geq 0.90$
CFI	0.966	0.970	0.954	$\geq 0.90$
NFI	0.954	0.963	0.978	$\geq 0.90$
RMSEA	0.030	0.032	0.040	$< 0.05-0.08$

**Table 5. Structural model-direct effect**

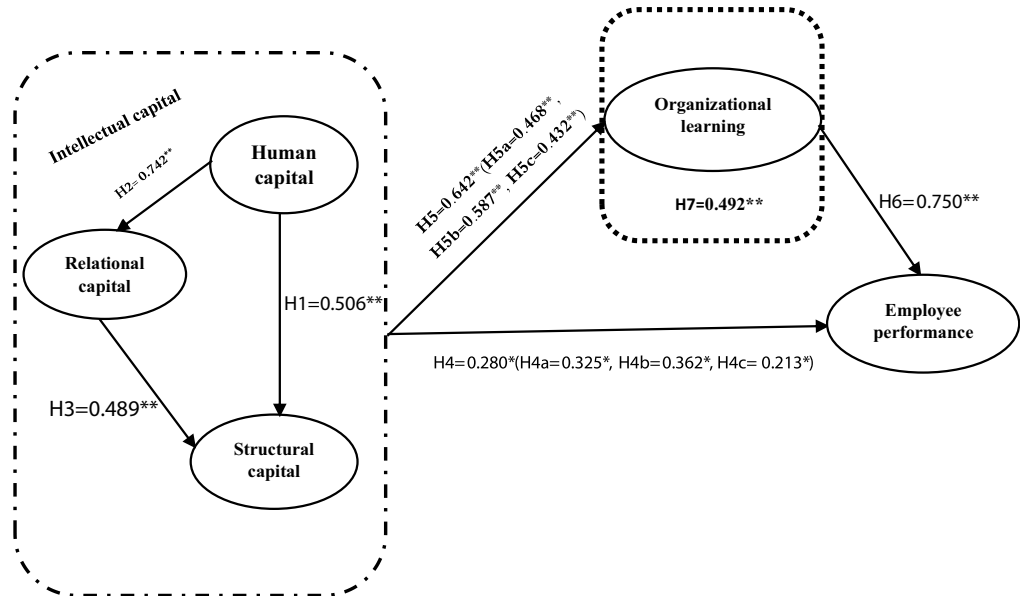
Hypothesis	Path from	Path to	Coefficient (B)	t- value	Result
H1	Human capital	Structural capital	0.506**	10.783	Supported
H2	Human capital	Relational capital	0.742**	11.346	Supported
H3	Relational capital	Structural capital	0.489**	9.784	Supported
H4a	Human capital	Employee performance	0.325*	3.160	Supported
H4b	Relational capital	Employee performance	0.362*	3.640	Supported
H4c	Structural capital	Employee performance	0.213*	2.065	Supported
H4 (a-c)	Intellectual capital	Employee performance	0.280*	3.582	Supported
H5a	Human capital	Organizational learning	0.468**	11.300	Supported
H5b	Relational capital	Organizational learning	0.587**	10.680	Supported
H5c	Structural capital	Organizational learning	0.432**	9.784	Supported
H5 (a-c)	Intellectual capital	Organizational learning	0.642**	10.810	Supported
H6	Organizational learning	Employee performance	0.750**	14.820	Supported
Fit indices	$\chi^2/df = 1.353$ , GFI = 0.924, RMSEA = 0.036, NFI = 0.959, CFI = 0.987				

$p < 0.05$ ,  $p^{**} < 0.01$

their knowledge to make it available to their colleagues. Current research findings show that HC is the primary component of IC and that any improvement in HC enhances both structural and relational capital. This suggests that Iraqi banks should maintain good relationships with customers to enable employees to discuss innovations with customers and business partners. Previous findings also show that RC can promote SC within the Iraqi banking sector, indicating that positive informal relationships can encourage the employees of banks to exchange and store knowledge in a formal way. These findings confirm the literature's suggestion that a firm's investment in human and relational capital significantly affects the construction of its SC (Xu & Li, 2022).

The SEM results support the hypothesized relations between IC and EP (H4a—c). This research found that HC improves EP (H4a). The KBV of the firm argues that sustained competitive advantage derives from the firm's resources and intangible assets such as managers' skills, information, and

**Figure 2. Structural model.**



knowledge (Chen & Nonaka, 2022). Hence, HC is a valuable organizational resource and a key factor driving performance. Organizations need knowledgeable individuals with excellent problem-solving experience and skills as well as the competence to make feasible and effective decisions under time pressure. The results of this research demonstrate that Iraqi banking staff who adopt creative ideas and are skillful are more likely to attain higher levels of job performance than those that are not. They are also likely to face complex situations in their work environment that require them to produce creative problem-solving approaches to carry out their jobs effectively. This ability to produce novel solutions or ideas while integrating existing information could be an important element of achieving their job-related objectives. These results support the findings of Martín de Castro et al. (2011), who suggested that employees with a good education and sophisticated skills can develop increased cognitive abilities, leading to more productive and efficient activities that improve their job performance.

RC ( $H4b$ ) generates mutual trust and communication among employees, which in turn improves knowledge and organizational networks that could eventually raise performance. RC prompts trust, provides organizational members with access to knowledge, information, and vital sources (Akhavan & Hosseini, 2016). When the knowledge is believed to come from a credible source, it is perceived to be useful and worthy of consideration; therefore, the recipient is more open and receptive to it and more likely to use it for work-related purposes. These characteristics can enhance EP. The results of the current research show that collaborative efforts among bank employees improve performance, especially when they share goals, responsibilities, and ambiguous and complex knowledge that enhances the quality and quantity of their work.

SC ( $H4c$ ) is a composite of significant items such as an organization's methods, systems, information technology, databases, and service quality (McDowell et al., 2018). It creates a context that enhances cooperation, the exchange of tacit experience, and team practices as well as shapes the collective actions in a bank. Organizations that support the development of SC can strengthen their work procedures, improve production and service efficiency, facilitate communication and technical exchange, and optimize problem solving to improve quality (Farzaneh et al., 2022). Therefore, the development and use of information technology and other structural components can help solve problems and enhance innovation, which can in turn improve EP.

**Table 6. Structural model-indirect effect**

Hypothesis	Path from	Path to	Effect	Estimate $\beta$	Total effect
H4 (a-c)	Intellectual capital	Employee performance	Direct	0.280*	0.772**
H7	Intellectual capital + organizational learning	Employee performance	Indirect	0.492**	
Fit indices	$\chi^2/df = 1.342$ , GFI = 0.956, RMSEA = 0.042, NFI = 0.961, CFI = 0.984				

This research found the relationships between the IC dimensions and OL (*H5a–c*) to be positive. Bašić (2021) contended that OL depends on the exchange and integration of extant information, knowledge, and ideas by organizational members. Individuals who can solve problems and be open to new experiences contribute to knowledge exchange and use their knowledge and other methods to carry out their jobs effectively (Peiró et al., 2020). Thus, to the extent that knowledge sharing is supported by employees, HC will also be enhanced in the organization (Kucharska, 2022). The results of the current research demonstrate that Iraqi bank employees who have skills, experience, and information are willing to acquire new ideas and approaches to aid work performance and support innovation. They have the enthusiasm to share the vision and mission among organizational members, are committed to each other and the bank, and use databases to solve their problems. The findings of this study concur with the assertion that members with skills and experience can share values and common goals, are more willing to interact and exchange job experiences over time, and consolidate and enhance existing knowledge and skills (Pasamar et al., 2019).

RC focuses on the nature and quality of the relationships among employees and team members (Ozgun et al., 2022). Individuals with more relationships and networks may exhibit better information acquisition and resource allocation. A greater level of social interaction, relationship quality, and customer network ties enhance an employee's ability to recognize and evaluate perceived knowledge, exchange information, and acquire new knowledge (Akhavan & Hosseini, 2016). The results presented here suggest that bank employees with more social relations—compared with those with fewer such relations—are willing to acquire more knowledge, follow R&D policy, encourage teamwork, and transfer knowledge within and across the bank. They can give new ideas and approaches on work performance, and use database of the bank in solving their problems. These findings confirm the prior finding that the attributes of RC facilitate a firm's knowledge acquisition and influence value creation through the exchange and combination of intellectual resources (Akhavan & Hosseini, 2016).

SC is the stock of knowledge owned by the organization and such capital includes its operational processes, methods, culture, information technology systems, and explicit knowledge (Farzaneh et al., 2022). Employees may be willing to share more knowledge with others in an organization that supports systems and processes (Kucharska, 2022). The results of this research suggest that Iraqi banks have accessible information systems that support innovation. This demonstrates that employees can share the vision and mission of the bank among themselves as well as accessing its databases and documents through online networks.

The SEM results support the hypothesized relations between OL and EP (*H6*). OL is the ability to create value through knowledge acquisition (developing or creating skills and insights), information distribution (disseminating to others what has been acquired by some), information interpretation (giving meaning), and organizational memory (saving knowledge and information in databases) (Antunes & Pinheiro, 2020). Knowledge is a valuable resource of organizations. The role of knowledge creation and sharing has thus emerged as an important area in the investigation

of innovation in organizations. EP is enhanced when organizational members exchange information, insights, skills, lessons learned, and experiences among themselves (Ozgun et al., 2022). When knowledge is used, learning takes place, which in turn changes behavior. The results of this research demonstrate that the Iraqi banking sector employees surveyed are willing to generate, collect, interpret, and disseminate their information, skills, insights, and experiences, which enables them to, for example, help those who have been absent or have heavy workloads, provide advance notice when they are unable to come into work, and meet the formal performance requirements of their job. They also engage in activities that directly affect their performance evaluations and voluntarily assist their managers at work.

The SEM results support the mediating role of OL in the relationship between IC and EP (H7). They show that IC improves OL, which in turn enhances EP. This indicates that IC promotes and supports knowledge acquisition (new ideas and approaches on work performance are experimented continuously and bank's system and procedure support innovation), information distribution (translating events and developing shared understandings and conceptual schemes), information interpretation (Employees share knowledge and experiences by talking to each other), and organizational memory (access to bank's databases and documents through some kind of network, and using database in solving problems) among employees in the Iraqi banking sector by focusing on HC (employees' capabilities, knowledge, and technical expertise), encouraging RC (social networks, trust, and cooperation), and supporting SC (organizational capabilities, information systems, and databases). Consequently, employees are willing to acquire new ideas and approaches, teamwork is encouraged, and knowledge transfer and contribution are enabled within and across the bank, while visions and missions are shared by information systems, which in turn leads to improvements in employees' behavior.

## 6. Theoretical and managerial implications

The current study investigated how IC components act as drivers of OL, which in turn leading to EP in the Iraqi banking sector. The study makes several contributions to the literature. First, the results confirm the positive interactions among the three components of IC, and suggest that each component of IC complements the others in reaching the organization's goals. It indicated that the bank's employees have the ability to transfer their individual knowledge into organizational knowledge that benefits the organization and provide more information to another employees and customers. HC, RC and SC have been known as the most important factors for the organization success and the basis of service quality in the service sector (Ozgun et al., 2022). Thus, this research is a response to Dumay and Garanina (2013) call for more research on how IC components works.

The study makes an important contribution to the mechanisms explaining the relationships between IC and EP. It provides information on the relationship between IC and EP by applying it to a new setting (i.e., the banking sector), building on previous studies that have focused on either organizational (Huang & Huang, 2020; Ozgun et al., 2022) or financial (McDowell et al., 2018; Sardo et al., 2018) performance. These relations have not thus far been studied in a banking environment, particularly in developing countries such as Iraq and on an individual level. This study considers IC as incorporating three different components of human, structural, and relational capital, unlike previous studies that treated IC as an aggregated variable and ignores the separate effects of each component on desired outcomes (Ozgun et al., 2022). The results emphasize that the three components of IC (HC, RC, and SC) influence EP, which strengthens previous evidence on the role IC plays in enhancing EP in Iraqi banks. IC is a key factor in building competitive advantage and a core component of performance. This implies that EP is enhanced if banks can require the specialized knowledge, skills, and abilities embedded in individuals, such that their HC encourages mutual trust among employees, creates organizational network connections, and supports information technology systems.

The research strengthens the link between IC and OL among employees, showing that IC encourages and promotes knowledge acquisition and sharing. This sheds light on the most important dimension that influences OL and hints at how banks can promote OL activities.

Fourth, the research empirically strengthens the role OL plays in enhancing EP in the banking sector. It shows that OL activities can contribute to banks' competitive advantage. OL is known as a set of actions related to knowledge acquisition, information distribution, information interpretation, and organizational memory (Mai et al., 2022). Managing and sharing knowledge as a strategic resource is one of the foundational weapons that enable banks to increase their competitive advantage and chance of survival.

Finally, the most significant contribution of this research is the recognition of the mediating effect of OL on the relationship between IC and EP. The findings support and extend previous studies (Farzaneh et al., 2022) that asserted that OL are the key factor to success in organizations. It indicates that the skillful and knowledgeable employees support both exploitative and explorative learning, which, supports the acquisition of knowledge from external source and sharing it among employees. The results show that more relationships among employees across organizational levels and with customers lead to shared value creation, particularly in knowledge-intensive organizations such as banks. It's also found that SC develop the capabilities of the employees by allowing them to translate the organizational knowledge base that exists in various forms into new routines or processes to offer novel products or services such as accuracy, the ability to organize and implement work in a way that minimizes errors and helping others. Hence, the results contribute significantly to the literature on OL's support for the relationship between IC and EP and provide a better understanding of these relationships in the banking industry within developing countries, specifically Iraqi context.

The results provide support for the KBV theory, and give a clear understanding that banks should become learning organizations to maximize their knowledge base and gain competitive advantage through performance. Its emphasis that the good quality of employees form a key element in knowledge-intensive industries such as bank because knowledgeable employees create organizational learning capability. It showed that RC contributes to both OL and EP, confirming that it is critical for bank to develop good relationships with its employees and customers. The theory also explained that SC is imperative for enhancing OL capability through investment in information technology help a bank to utilize and maximize knowledge value to improve its OL capability which in turn develop the performance of the employees.

The research has implications for bank managers. The interactions among IC components, need from bank managers to understand the multi-dimensionality of IC in their banks if OL practices are supposed to have the desired effect on performance. To enhance OL and EP, managers in Iraqi banks should encourage social connections among employees, foster formal and informal channels of communication, spread trust among organizational members to facilitate cooperation and knowledge transfer, improve business processes and organizational routines, adopt a developmental culture, and recruit and retain employees with good skills and the competence to generate and apply new ideas. Furthermore, the results indicate that good EP requires more professional IC. Therefore, banks should train employees systematically and enrich their work experience to improve their HC.

The important role of OL as a mediator variable in the relationship between IC and EP implies that bank managers need to promote knowledge acquisition and sharing. The findings show that EP requires employees to acquire, generate, and share knowledge. Therefore, managers should design strategies aimed at encouraging knowledge acquisition and sharing such as sessions, and workshops, etc.



## 7. Limitations and future research suggestions

This research was limited to focusing on IC as an enabler of OL and EP. However, it did not consider all those factors critical to OL such as individual characteristics and organizational climate. Future research could study other factors. Examining the impact of IC on such outcomes as innovation, education quality, and staff satisfaction would be another interesting topic for future research. This study was conducted in the banking sector and further opportunities exist to explore such relationships in other industries. Moreover, this research was applied in a single developing country and the findings may not generalize to other developing countries with different economies and societies. Future research could extend the investigation to countries with similar structures, cultures, and contexts to Iraq's.

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### Supplemental data

Supplemental data for this article can be accessed online at <https://doi.org/10.1080/23311975.2023.2284437>

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## Appendix: Questionnaire items

### (1) Intellectual capital

#### • Human capital

- Employees have suitable education to fulfill their jobs.
- Employees are well trained.
- Employees hold suitable work experience for accomplishing their job successfully.
- Employees are well-skilled professionally to accomplish their job successfully.
- Employees understand that doing this job well is a reward in itself.
- Considering the time spent on the job, employees feel thoroughly familiar with their tasks

#### • Relational capital

- Our employees have a close interaction with their partners.
- Our employees have mutual respect and trust with the partners.
- Our employees have personal friendships with the partners
- Our employees are skilled at collaborating with each other to diagnose and solve problems.
- Our employees share information and learn from one another.
- Our employees interact and exchange ideas with people from different areas of the bank

#### • Structural capital

- Our bank has an easily accessible information system
- Systems and procedures of our bank support innovation
- Our bank's culture and atmosphere are flexible and Comfortable
- The overall operations procedure of our bank is very efficient

### (2) Organizational learning

- The employees attend fairs and exhibitions regularly
- There is a consolidated and resourceful R&D policy
- New ideas and approaches on work performance are experimented continuously
- Bank's system and procedure support innovation
- The bank has formal mechanisms to guarantee the sharing of the best practices among the different fields of the activity
- Bank's vision and mission are shared to all of the staffs
- Innovation/development in the bank is regularly shared in the scheduled meeting
- All the members of the bank share the same aim to which they feel committed
- Employees share knowledge and experiences by talking to each other
- Teamwork is a very common practice in the bank.
- Bank owns database to keep useful information and experiences
- The bank has directories or e-mails filed according to the field they belong to, so as to find an expert on a concrete issue at any time.
- There is access to bank's databases and documents through some kind of network.
- Bank's databases are always kept up-to-date
- Employees in the bank often refer to database in solving their problems
- Training on system usage and knowledge management provide ease for the employees to work

### (3) Employee performance

- Adequately completes assigned duties
- Fulfills responsibilities specified in job description
- Meets formal performance requirements of the job
- Engages in activities that will directly affect his/her performance evaluation
- Helps others who have been absent
- Show pride when representing the bank in public
- Conserves and protects bank property
- Express loyalty toward the bank