



The Influence of Management Information Systems on Enhancing Human Resource Practices as a Mediating Role of Knowledge Management: An Analytical Investigation of the Opinions of a Specimen of Employees in Iraqi Telecommunication Companies Operating in Tikrit City.

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Abstract: This work investigated the impact of management information systems (MIS) on improving human resources (HR) practices, with knowledge management as a mediating variable, from the perspective of a sample of employees in Iraqi telecommunications companies working in Tikrit City. To fulfil the objectives, the descriptive analytical method was employed, and the researcher developed a questionnaire and handed it to a specimen of (166) female and male employees. Statistical analysis using SPSS and AMOS software revealed a set of results, represented by the fact that there is a statistically substantial influence at the level ($\alpha \leq 0.05$) of MIS on improving HR practices from the perspective of employees in Iraqi telecommunications companies operating in Tikrit City. It also showed a statistically substantial effect at the significant level ($\alpha \leq 0.05$) for knowledge management as a mediating variable in the relationship between MIS and HR management functions in Iraqi telecommunications companies.

Keywords: Management information systems, Human Resource Practices, Knowledge Management, Iraqi Telecommunications Companies, Tikrit City.

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Introduction

The world today witnesses rapid, multifaceted, intertwined, and highly complex changes, which have cast their shadows on business organizations and imposed a lot of pressures that threaten their survival and continuity. Globalization of production and markets, the accelerating pace of technological innovation, and the continuous fluctuation in demand for goods and services are among the most important factors that have made the business environment full of opportunities and threats, which have become a major source of pressure on all business organizations, not only for the sake of competition but also for securing their continuity.

The new developments have led to a shift in the organization's focus from revolving around money to moving towards knowledge. Employing knowledge in the service of the organization's goals has become one of its most important measures of success and greatness. In the past, organizations focused on tangible assets as a measure of their market and competitive position, whereas in most contemporary organizations, the focus has shifted to intangible assets (intellectual) represented by knowledge to build a general foundation for their operations. Organizations must keep pace with the updates to match the rapidly changing business environment. The capabilities, experiences, and skills of human capital vary

among individuals, as there is who possesses these components to a greater extent than others. Hence, the need for knowledge management arises. It signifies the existence of clear ways to invest in these components by working to remove obstacles that act as constraints and reorganizing structural functions, which may help the organization in change and development to pursue the demands of its surrounding and economic environment, increase company revenues, and enhance employee loyalty to the organization. The organization can also work on developing its competitive position by focusing primarily on intangible assets, as a result of the failure of knowledge management programs that focus on accounting information systems and accounting information technology, which have not sufficiently focused on the human aspect of knowledge management (Nowshade, 2015).

Knowledge management has emerged as a concept of great importance, especially in current times, as it is considered the focal point for many parties, especially in telecommunications companies. Therefore, facing the challenges and rapid variations in the environment of business, and the presence of new trends for work urge it to respond to keep up with developments and changes. Knowledge and its applications are among the key challenges of this century, where most companies seek to identify valuable information, capture it, and use it in their various daily operations (Al-Adwan, 2019).

The available knowledge within an organization becomes a competitive benefit that characterizes it from others. Knowledge is represented by persons who have different methods, stored knowledge, and information. Therefore, organizations that are able to recruit, choose, cultivate, and support individuals with leadership abilities are the ones who achieve success. Thriving organizations are also those that prioritize their consumers, their wants, and desires, and exploit opportunities given by diverse technology in their environment. Thus, the leading challenge for organizations now is to maintain the persons skilled availability, train them, and develop their skills. In the face of intense competition, organizations strive to maintain their stability and continuity by continuously integrating with the changing environment, ensuring to meet the constantly evolving and significant demands of customers, and achieving a balance between stakeholders' interests (Abu Al-Jadayel, 2012).

Knowledge management is entrusted to important elements and techniques that enable it to integrate explicit knowledge with tacit knowledge, contributing to making companies capable of adapting to digital developments and learning from them. Knowledge is a concept superior and more comprehensive than the concept of information. Knowledge is the optimal utilization of information, experiences, capabilities, and skills to understand and perceive phenomena, events, and facts with greater clarity and breadth. Hence, the concept of knowledge has emerged, where the human mind, and creative and innovative ideas are considered primary sources of excellence. The scope of this concept has greatly extended to embrace all material, cultural, and mental potentials available to the company. The success of the company is related to its ability to leverage the knowledge it possesses and attempt to develop it in order to create new knowledge to be used in innovating policies, work methods, and outputs that meet needs and achieve goals (Atallaq, 2017).

Owing to the significance of the role that knowledge management can play in influencing both management information systems and human resource functions, this research attempts to investigate the reality of management information systems used in one of the groups operating in one of the sensitive service fields, namely the telecommunications field, and the effect of these measures on its human resource management (HRM) functions, and to what extent this impact varies depending on the efficiency of knowledge management.

The Research Problem

Information is considered the driving tool for managing any economic project, serving as a connecting element and coordinating between activities and economic events practiced by the institution and information users when making decisions of various kinds. The quality of any decision depends on the information quality presented. The issue lies in the telecommunications companies striving to achieve competitive advantage through intense competition after the increase in service providers. This is achieved by introducing everything new to achieve competitive advantage by utilizing individual and

collective mental energy. The major question summarizing the issue is: What is the impact of management information systems on enhancing human resource practices with the existence of knowledge management as a mediating factor in Iraqi telecommunications operated companies in Tikrit city from the standpoint of their employees?

The Research Importance

The investigation's significance lies in its starting point from the human element, which is considered the most important element in the organization. Additionally, the essential of this study stems from being one of the few studies that addressed the relationship among management information systems and the development of HR management functions in Iraqi telecommunications companies. It is considered one of the few studies on this subject that examines the information systems influence on HRM with the existence of knowledge management as a mediating factor. The importance of the study also arises from the significance of MIS and HR functions, as they are the cornerstone for subsequent functions built on placing the right person in the right place at the proper time and size, in addition to other functions such as training and planning. This study is important for Iraqi telecommunications companies because of the information it contains regarding management information systems and employees, as well as attempting to assess the level of knowledge management in companies.

Furthermore, the current research importance lies in its ability to provide assistance to leaders in organizations in general and in telecommunications companies in particular to understand the impact that knowledge management may have on the relationship between management information systems and human resource functions. This is in light of the results and recommendations of this research to increase the effectiveness of human resource functions. The importance of this study increases as it is one of the rare studies locally, according to the researcher's knowledge, that addresses management information systems and their impact on improving human resource practices (knowledge management as a mediating variable).

Procedural Definitions:

- Human Resource Management (HRM) Functions: A set of practices and policies carried out by the company's management to implement different activities related to human aspects needed by the management to perform its functions in the company. It is measured through surveying the opinions of sample individuals about a set of paragraphs representing HRM functions.
- Human Resource Planning: Identifying the company's future human resource demands in number and quality. It is assessed by polling sample people on human resource planning paragraphs.
- Recruitment and Selection: Entice qualified workers to join the organization and choose the most productive. It is assessed by asking sample people regarding recruiting and selection paragraphs.
- Human Resource Training: A structured procedure to improve employee performance by altering their behavioral attitudes and transferring information and skills via educational experience to accomplish a certain task. Sample people's opinions on human resource training paragraphs are surveyed.
- Wages and Incentives: A company's financial and non-financial rewards for an employee's time and effort, depending on achievements and objectives. A poll of a sample of people on paragraphs that appropriately depict earnings and incentives measures it.
- Performance evaluation: A detailed assessment of employee performance that informs job growth and promotion choices. It is carefully assessed by polling a sample of people about a series of paragraphs appropriately expressing performance assessment.
- Security and Healthcare: The company's dedication to protecting workers from workplace accidents and providing healthcare in emergencies. It is assessed by polling sample people regarding human resource planning paragraphs.

- Management Information System: These systems store and process management information for decision-makers. It is a cohesive group of pieces that work together to achieve its aims.

Previous Studies

A study by Ali (2023) determined the knowledge management influence on the banking services quality at the National Bank of Omdurman. The research found several results, among the most prominent: there is a statistically important positive relationship between knowledge management and the quality of banking services at the National Bank of Omdurman. Additionally, the bank adopts the process of knowledge distribution to employees through issuing periodic newsletters and reports about work progress and performance. The study recommended the necessity of regularly applying knowledge to contribute to the development of banking services, as well as benefiting from the experiences and expertise of international banks in the knowledge application field to keep pace with developments and innovations in the world of banking services industry.

Al-Hamadi et al. (2023) examined how Management Information Systems (MIS) affect strategic performance in Yemeni Islamic banks in Aden Governorate. The study examined MIS's information security, software, physical resources, and human resources. Strategic success was assessed by adaptability, survival, and growth. Kak Islamic Bank, Saba Islamic Bank, and Al-Tadamon International Bank were investigated. The investigation found numerous crucial points. It confirmed that MIS affects strategic performance. It also showed that information security, software, physical resources, and human resources affect strategic effectiveness in the institutions evaluated. The MIS availability level in the studied banks is very high overall and at the dimension level (physical resources, software, information security, and at a high level for the human resources dimension). The level of strategic success of the studied banks is high overall and at the two dimensions (growth, adaptation), and at a very high level for the survival dimension.

The study by Hamoud and Al-Hussein (2023) aimed to define management information systems and clarify their importance in making sound administrative decisions in hotel establishments in the tourism sector. Additionally, it mentioned the elements of these systems that are relied upon to influence customer behavior and attract them to increase demand for hotel services. To achieve this, three main axes were addressed:

1. The first axis defines management information systems. The results showed acceptance of the basic hypothesis of the research, indicating a statistically significant relationship between management information systems and administrative decision-making. One of the study's recommendations was the necessity of establishing a greater organizational culture by adopting a clear and comprehensive system for all employees, thus reducing the occurrence of problems and conflicts.

The study by Idris et al. (2023) tested the impact of the MIS requirements on organizational performance thru the internal environment as a mediating factor. The investigation assumed that there is a strong positive correlation among the requirements of MIS and the elements of the organizational environment. It was found that there is a correlation between the individual variable and organizational commitment, as well as a positive relationship among devices, organizational commitment, and organizational structure. There is also a strong positive relationship among information systems components and organizational performance, where the individual variable is positively correlated with performance. Additionally, there is a positive impact between devices and performance, as well as a positive relationship between software and performance.

The study by Baabad (2023) aimed to identify the relationship among knowledge management application and organizational excellence through a field study on employees of the Emirate of Mecca Province. To reach the research objective, the researcher adopted a descriptive analytical method. It was detected that there is a statistically substantial relationship between knowledge management in all its dimensions and organizational excellence at a significant level of (0.05). It also became evident that there were no statistically significant variances in the mean responses of the research sample regarding

knowledge management and organizational excellence, attributed to differences in variables such as years of experience, age, educational qualification, and job level, where the significant level was greater than (0.05).

Obeidat et al.'s (2021) study revealed the controlled function of information sharing ingrained in the link between human capital and job empowerment at Jadara University. At Jadara University, knowledge sharing was found to have a statistically significant effect on the relationship between human capital and empowerment.

The study by Rafieyan-Isfahani, Peikari, & Rafieian-Isfahani (2020) targeted the nature of the relationship among intrinsic and extrinsic motivation and intentions of knowledge sharing among nursing staff in Iranian hospitals. After developing a questionnaire and conducting statistical analysis, the results revealed a statistically significant correlation between intrinsic motivation and intention to share knowledge, as well as a correlation between extrinsic motivation and intention to share knowledge. Additionally, the study revealed a positive association between knowledge sharing intention and self-efficacy, as well as altruism. However, there was no significant correlation between mutual benefits and intention to share knowledge. The study recommended encouraging nurses to share knowledge.

The study by Moon, Um, & Kim (2019) expected to identify the knowledge transfer structure and sharing in a Korean company of construction. Through analytical methods, the study analyzed data from 270 employees in a construction company in South Korea using Netminer 4.0 for network analysis. Though most employees of the company participated in the knowledge transfer network, the network analysis revealed that the requests for knowledge transfer were directed at a few individuals. Furthermore demonstrating the product development department's greater activity in knowledge sharing to other departments was block modeling analysis. The study by Andrews & Smits (2019) aimed to evaluate the relationship between implicit knowledge exchange and teamwork through organizational learning analysis. The study suggested that as organizations evolve, they should strive towards a strategic knowledge management approach, using the organization as a learning model. The results indicated a correlation between organizational learning, teamwork, and implicit knowledge. The study recommended promoting the idea of teamwork and knowledge exchange among employees and leveraging these concepts for organizational benefit.

Formulating the hypotheses of the study and its model

After reviewing many previous studies, the researcher found that there was a shortage in field studies that addressed the relationship among the three variables of the current study together, which were information systems, HRM, and knowledge management. Therefore, the current study aimed to link variables that previous research rarely connected, especially in the Iraqi and Arab environments.

This study is also characterized by its investigation of the impact of management information systems and HRM. Few previous studies have examined this relationship between the two variables in Iraq, which could contribute to bridging the gap in management literature generally and management information systems literature especially.

The Relationship between MIS and HR Management

HRM needs a large amount of information to make its decisions effectively. If capital and labor are the two main economic resources for businesses, then information is considered the third resource, no less important than the others. HRM needs management information systems to achieve optimal information use, which helps the organization gain a competitive advantage. Those who possess distinguished management information systems put themselves in a continuous process of change and development. Moreover, these systems represent an important approach through which human resources in the organization can be developed and empowered to perform their functions effectively.

Technological advancements and the challenges of the information and communications revolution have a critical role in bringing about several economic and cultural developments. This has prompted human

organizations to change their ways of dealing with the workforce in light of cultural diversity, prevailing magnitudes, as well as the diversity of skills and specialties resulting from the ongoing developments in various fields of human resource supply and demand. This cultural diversity of individuals emphasizes new magnitudes dictated by the necessity of dealing with technological innovations, such as respecting work and its deadlines, considering time as a cost, and improving the quality of life of working individuals, among other organizational and administrative effects.

Based on this, the major hypothesis and its derived sub-hypotheses, which express the impact of the independent on the dependent variables, can be formulated as follows:

The first major hypothesis (H01): There is no statistically substantial impact at a significant level ($\alpha \leq 0.05$) of management information systems on HRM functions in Iraqi telecommunications companies.

The Relationship between MIS and Knowledge Management.

Management information systems contribute to advanced computer storage and retrieval methods such as retrieval languages and correlational databases, and database management systems to improve organized memory. These tools increase access speed to organized memory and enable organizational software suites to generate structured and unstructured internal memory, sharing this memory over time. Hence, the role of communication systems and information technology in enhancing and expanding both the surface (context-specific knowledge) and logical (general and detailed knowledge) memory becomes apparent. Document management technology allows organizations to know the past and present, often distributed among a variety of retention facilities for effective storage and accessibility. By relying on this technology, organizations work to build logical memories by developing extensive knowledge repositories about customers, projects, competition, and the industries they serve. Most organizations implement knowledge management projects, especially regarding building knowledge repositories. These projects aim to capture knowledge for later and wider access by individuals working in those organizations. Shared repository technologies enable knowledge management systems and solutions, containing best practices, lessons learned, and other information and knowledge about products, markets, and customers within the framework of competitive intelligence. Based on the above, it is possible to formulate the hypothesis concerning the independent variable influence on the mediator as follows:

The second major hypothesis (H02): There is no statistically substantial impact at a significant level ($\alpha \leq 0.05$) of management information systems on knowledge management in Iraqi telecommunications companies.

Knowledge Management and HRM

The capabilities, experiences, and human resources skills vary among employees. Some possess these components more than others, hence the need for knowledge management. It indicates a comprehensive and clear method to understand and invest in these components by getting rid of constraints and restructuring, aiding in development and adaptation to meet the requirements of the economic environment. It may probably increase company returns, employee satisfaction, loyalty, and enhances competitive positioning by stressing on intangible assets. Due to the failure of knowledge management programs that focused solely on information systems and information technology without sufficient focus on the human aspect of knowledge management, the topic of knowledge transformation has gained significant importance recently. It drew attention to human resources and their importance in knowledge management. Knowledge transformation ensures the conversion of knowledge from its implicit state to its explicit state and vice versa, leading to innovation within the organization. Therefore, the transformation process occurs among employees in the organization, as each individual or group possesses specific knowledge. Thus, efforts should be made to transfer this knowledge among individuals and groups to benefit from it in various administrative activities within the organization. Human resources in general, and knowledge resources in particular, play a major role in goal setting, strategic decision-making, analyzing and monitoring the outer environment, supervising internal operations,

The third main hypothesis (H03): There is no statistically substantial influence at a significant level ($\alpha \leq 0.05$) of knowledge management on HRM functions in Iraqi telecommunications companies.

Knowledge management is the ability to manage the intellectual capabilities of a particular group of HR, represented by capabilities that can generate ideas concerned with the creative and strategic development of systems, activities, operations, and strategies in a way that ensures the organization makes strategic decisions that lead to sustainable competitive advantage. Given the scarcity of Arabic studies, to the optimum of the researcher's knowledge, that have linked knowledge management to strategic decision-making in organizational management, the researcher in this research seeks to detect the extent to which knowledge management contributes to making peaceful strategic decisions. Based on this, the fourth major hypothesis could be formulated as following:

The research model

This variable included three dimensions: the requirements for implementing MIS, the quality of management information systems, and the utilization of MIS. The development of these dimensions relied on the study by (Nassif, 2012), the study by (Sukkar & Jardat, 2010), the study by (Al-Damour & Al-Masarweh, 2012), and the study by (Luzia et al., 2015). Additionally, the study model included the mediating variable represented by knowledge management, which was determined by the researcher based on the study by (Mojtaba & Taghipour, 2013). As for the dependent variable represented, as shown in the study model, in the functions of human resources management, the researcher identified it based on the study by (Haoyong, 2014).



The Methodology

The research employed a descriptive-analytical approach to reach its results and test its hypotheses. This method assists in clearly describing the phenomenon under study and interpreting the nature of the relationships and effects between its variables (management information systems, human resource practices, knowledge management). It also describes the effect of MIS on HR management practices with knowledge management as a mediating variable. This chapter includes the method of gathering basic data using a questionnaire made by the researcher by referring to previous studies and literature on the subject, statistically analyzing them to respond to the research questions, and testing the hypotheses that clarify the relationship between the study variables.

The research community and specimen

The research community consists of all employees in the main offices of two companies (Zain Iraq, and Asiaccell) in Tikrit city. To determine the size of the target community, the researcher communicated with the human resources management in the companies. It was found that the number of the targeted community is 183 employees. Due to the manageable size and ease of reaching the entire community, the researcher employed a full enumeration sampling method. The researcher designed an electronic questionnaire distributed to all members of the research community through WhatsApp and Facebook applications. After one month of distributing the questionnaire, the number of valid responses for statistical analysis was 166 employees. Thus, the study sample consisted of 166 employees. Table (1) illustrates the distribution of research specimen persons based on personal variables.

Table (1) Research Sample Persons Distribution based on Personal Variables

Variable	Level	No	Percentage (%)
Gender	Male	120	72.3
	Female	46	27.7
	Total	166	100.0
Job Title	Director	1	0.6
	Head	10	6.0
	Official	155	93.4
	Total	166	100.0
Years of experience	Less than 5 years	72	43.4
	5-10 years	21	12.6
	More than 10 years	73	44.0
	Total	166	100.0

Sources of data collection:

In this research, the researcher relied on two main sources to gather the necessary information and data for conducting the research. Secondary sources constitute one of these sources and include a range of books and journals related to the study topic. Additionally, data available on internet-based platforms related to the same topic was utilized. As for the primary sources, they were characterized in the development of a questionnaire related to the study topic. This questionnaire was constructed based on the theoretical framework of the study, benefiting from previous research reviewed in an earlier stage of its development. The aim of this questionnaire is to collect the necessary data that will assist in reaching the desired results of the study.

The research tool:

The researcher developed and constructed the study instrument after reviewing previous research and theoretical literature in this field. In developing the questionnaire items, the researcher drew upon surveys used in previous investigations that addressed topics similar to the current investigation. The purpose of using the questionnaire in this investigation is to meticulously investigate the role of knowledge management as a mediator between information systems and HRM. The questionnaire was developed in a manner that aligns with the objectives of the current research. The study tool (questionnaire) consists of two sections:

Section One: Demographic Variables (personal and occupational variables of the study sample individuals).

Section Two: Independent Variable: Management information systems.

The level of management information systems is measured through (26) statements distributed across three sub-dimensions, with the elements of the independent variable developed based on a set of previous studies.

Section Three: Dependent Variable: HR Management Functions.

The level of HRM functions is measured through (39) statements distributed across six sub-dimensions, with the elements of the dependent variable developed based on a set of previous studies.

Section Four: Mediating Variable: Knowledge Management.

The level of knowledge management is measured through (10) statements without subdivision into sub-dimensions. To analyze the data linked to the variables and test the research hypotheses, the researcher utilized a five-point Likert scale to answer the questions according to the following ratings: (1) stands for the answer: to a very small extent, (2) stands for: to a small extent, (3) is the answer: to a moderate extent, (4) stands for the answer: to a large extent, and (5) is the answer: to a very large extent. To clarify the mean scores of the estimates for each item of the instrument by the study sample individuals, Likert was processed based on the following equation (Subedi, 2016):

$$\text{Class length} = \frac{\text{Maximum limit of alternative} - \text{Minimum limit of alternative}}{\text{No of levels}}, \text{ Class length} = \frac{1-5}{3}$$

Accordingly, the arithmetic means can be categorized as follows:

- Category One: This category indicates a low level of evaluation if the arithmetic mean is restricted between (1.00 - less than 2.33).
- Category Two indicates a moderate level of evaluation if the arithmetic mean is restricted between (2.33 - less than 3.66).
- Category Three indicates a high level of evaluation if the arithmetic mean is restricted between (3.66 - 5.00).

Normal Distribution Test

The researcher ensured the normal distribution of the data by measuring the skewness and kurtosis coefficients for each item of the research tool. This procedure aims to confirm the collected data suitability for conducting confirmatory factor analysis. The results showed that all skewness coefficients fall within the minimum and maximum limits allowed for normal distribution, with kurtosis magnitudes ranging between (-2, 2) and skewness magnitudes between (-7, 7). This indicates that the survey data are normally distributed and thus suitable for the statistical analysis used later.

Outliers Test

After assessing the normal distribution of the data, it is necessary to check for the possibility of outliers and the need to exclude them if they affect the data distribution. To identify and exclude outliers from the statistical analysis, the researcher resorted to the Mahalanobis test. After conducting the test, it was found that (5) surveys were outliers from the normal distribution. Since all remaining surveys follow a normal

distribution, the percentage of outliers was (0.03), which is less than (10%). Therefore, there is no need to delete these surveys from the statistical analysis due to their insignificant impact on the accuracy of the results. (Penny,1996).

The research tool reliability

The coefficient of Cronbach's alpha was adopted to assess the internal questionnaire items consistency. This coefficient is widely used by researchers for this purpose. The findings are presented in Table 2, which illustrates that the coefficient of Cronbach's alpha for the Management Information Systems (MIS) domain was 0.976. The coefficient of Cronbach's alpha for the Human Resource Management (HRM) domain was 0.927, and for the knowledge management (KM) domain was 0.882. These magnitudes are undoubtedly deemed good as they exceed the suggested threshold of 0.70 (Gliem and Gliem, 2003).

From the previous Table (2), it is obvious that the reliability coefficient (Cronbach's alpha) magnitude when deleting all items is lower than the Cronbach's alpha magnitude for the dimension. This means that all items contribute to increasing reliability, and their absence has a negative impact on the reliability of the instrument. It is also evident from the previous table that the coefficient of Cronbach's alpha for the scale is high and greater than (0.70), which is a good ratio.

Table (2) The coefficient of Cronbach's alpha for Questionnaire Items

	Reliability coefficient in case of deleting the phrase from the total score									Knowledge management
	Management information system			Human Resources Management Jobs						
	MIS Application Requirements	MIS Quality	Use of MIS	Human Resource Planning	Polarization and selection	Human Resources Training	.Wages and incentives	.Performance evaluation	Achieving security and health .care	
1	0.956	0.950	0.933	0.930	0.875	0.960	0.881	0.731	0.874	0.796
2	0.951	0.948	0.932	0.932	0.834	0.958	0.876	0.725	0.862	0.793
3	0.953	0.949	0.933	0.928	0.812	0.959	0.860	0.684	0.872	0.788
4	0.955	0.951	0.914	0.917	0.820	0.958	0.864	0.675	0.824	0.798
5	0.950	0.948	0.916	0.918	0.823	0.959	0.876	0.682	0.834	0.811
6	0.952	0.953	0.923	0.918		0.966	0.870	0.670		0.812
7	0.952	0.951	0.920	0.920		0.967	0.865	0.679		0.820
8	0.953	0.949	0.917				0.869			0.826
9	0.958	0.949								0.813
10										0.804
The whole dimension	0.959	0.955	0.934	0.933	0.877	0.968	0.882	0.732	0.880	0.822

Linear Collinearity Test

The permissible variance and Variance Inflation Factor (VIF) magnitudes were used to ensure that the data is free from the problem of linear structure between independent variables, indicating that the independent variable is a function of another independent variable, i.e., it increases when the other increases and decreases when the other decreases. The results are illustrated in Table (3).

Table (3) Findings of the Linear Collinearity Test between Study Variables

Variable	Variance inflation factor	Allowable variance
Requirements for the implementation of management information systems	0.302	3.311
Quality of management information systems	0.246	4.070
Use of management information systems	0.358	2.796

"It is extremely obvious from the findings presented in Table (3) that the magnitude of the coefficient of variation inflation is appropriate in that it is less than (10), and the allowed variance magnitudes also meet the acceptance criterion by being greater than (0.1). Thus, the research model is free from the problem of linear structure among the independent variables.

Statistical Methods Used in Data Analysis:

The researcher used the SPSSv21 program as well as the AMOS program to process the collected data using the following statistical techniques:

- Descriptive statistics measure the sample responses through frequency, percentage, mean, and standard deviations.
- Cronbach's alpha test to test the reliability of the scale.
- Variance Inflation Factor (VIF) test to ensure no multicollinearity.
- Multiple regression analysis and path analysis to test the hypotheses.

Results Related to the Level of Using Management Information Systems in Iraqi Telecommunication Companies from the Employees' Perspective.

From Table (4), it is observed that the level of (MIS) in telecommunications companies from the employees' perspective is moderate. The mean of respondents' answers about the MIS field was (3.42). Additionally, Table (4) indicates that the arithmetic mean of respondents' perceptions about the dimensions of the MIS field ranged from (3.32 - 3.63) with an average rating for all dimensions of the field. The dimension "Use of Management Information Systems" ranked first with an average of (3.63), followed by "Requirements for Applying Management Information Systems" with an average of (3.33), and lastly, "Quality of Management Information Systems" ranked third with an average of (3.32).

Table (4) Descriptive Statistical Results of the "Management Information Systems" Dimensions Ranked Descendingly According to the Arithmetic Mean."

No	Dimensions	Rank	Level of assessment	Relative importance	Arithmetic mean
1	Use of Management Information Systems	1	Moderate	72.6	3.63
2	Requirements for Applying Management Information Systems	2	Moderate	66.6	3.33

3	Quality of Management Information Systems	3	Moderate	66.5	3.32
The field of "management information systems" as a whole		Moderate		68.4	3.42

Results Related to the Level of HRM Functions in Iraqi Telecommunication Companies from the Employees' Perspective.

Table (5) Descriptive Statistical Results of "HRM Functions" Dimensions Ranked Descendingly According to the Arithmetic Mean.

No	Dimensions	Rank	Level of assessment	Relative importance	Arithmetic mean
1	Human Resource Planning	1	High	79.00	3.95
2	Recruitment and Selection	1	High	79.00	3.95
3	Human Resource Training	3	High	77.80	3.89
6	Security and Health Care	4	High	75.80	3.79
4	Wages and Incentives	5	Moderate	70.20	3.51
5	Performance Evaluation	5	Moderate	70.20	3.51
The field of "human management jobs" as a whole		High		75.00	3.75

From Table (5), it is evident that the level of HR Management functions in telecommunication companies, from the employees' perspective, is high. The arithmetic mean of respondents' answers about the HR management field was (3.75), indicating a high level of assessment. Additionally, Table (5) illustrates that the arithmetic means of respondents' perceptions about the dimensions of HR management functions ranged from (3.51 - 3.95). The dimensions "Human Resource Planning" and "Recruitment and Selection" ranked first with an average of (3.95), demonstrating a high level of assessment. The dimension "Human Resource Training" was in the third position with an average of (3.89), also indicating a high level of assessment. The dimension of "Security and Healthcare Provision" was fourth with an average of (3.79), demonstrating a high level of assessment. The fifth and last position were the dimensions "Wages and Incentives" and "Performance Evaluation" with an average of (3.51), demonstrating an average level of assessment.

Results Related to the Level of Knowledge Management in Iraqi Telecommunication Companies from the Employees' Perspective.

Table (6) Descriptive Statistical Results of Respondents' Answers for the "Knowledge Management" Field Ranked Descendingly According to the Arithmetic Mean.

No	Paragraph.	Rank	Level of assessment	Standard deviation	Relative importance	Arithmetic mean
10	The company classifies and processes the raw data and then converts it into information.	1	High	0.86	89.0	4.45
9	The company's	2	High	0.93	87.6	4.38

	management provides sufficient information sources (such as the library and the Internet) for employees.					
4	The opinions, experiences and experiments that the company goes through are recorded and saved in databases as expert systems.	3	High	0.85	78.4	3.92
5	The company provides data that helps employees find solutions to the administrative problems they face.	4	High	0.84	77.2	3.86
7	Using knowledge helps employees increase their job skills and improve and increase the level of service provided to customers.	5	High	0.81	77	3.85
3	The company's management encourages its employees to participate in various activities to bring new ideas and apply them and rewards them for that.	6	High	0.88	76.2	3.81
8	The company determines the modern methods used in knowledge management.	7	High	0.83	75	3.75
1	The company uses the scientific research method to create new knowledge related to its goals.	8	High	0.95	74.6	3.73
2	The company classifies data and information in scientific ways to benefit from them in obtaining knowledge.	9	High	0.76	73.8	3.69
6	Knowledge is shared among employees at the same administrative level from its various sources.	10	Moderate	1.01	63.6	3.18

The field of "knowledge management" as a whole	High	0.53	77.2	3.86
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From Table (6), it is apparent that the arithmetic mean of respondents' perceptions about the items in the Knowledge management field ranged from (3.18 - 4.45). Item number (10) stating "The company classifies and processes the raw data and then converts it into information," ranked first with an average of (4.45), demonstrating a high level of assessment. On the other hand, item number (6) "Knowledge is shared among employees at the same administrative level from various sources," ranked last with an average of (3.18), indicating an average level of assessment. The total mean for the field was (3.86), indicating a high level of assessment.

- Testing the hypotheses.

- Results Related to Testing the First Main Hypothesis (H01): There is no statistically significant influence at the significant level ($\alpha \leq 0.05$) of Management Information Systems (MIS) on HR management functions in Iraqi telecommunication companies.

For verifying the validity of the first main hypothesis, multiple regression analysis was employed to study the impact of Management Information Systems (MIS) dimensions on HR management functions in Iraqi telecommunication companies. The results were as follows:

Table (7) Results of Applying Multiple Regression Equation to Study the Impact of Management Information Systems (MIS) Dimensions on HRM Functions in Iraqi Telecommunication Companies

Variable	Non-standard coefficients		Unified coefficients		Statistical significance	R	R ²	R ² Modified	F	Statistical significance
	B	Standard error	β	T						
Regression stability	2.181	0.096		22.775	0.000	0.819	0.670	0.664	109.852*	0.000
Application requirements	0.207	0.040	0.423	5.158	0.000					
Quality of system	0.115	0.048	0.217	2.390	0.018					
Using systems	0.138	0.043	0.242	3.215	0.002					

*At a significant level ($\alpha \leq 0.05$).

From the analysis of variance results, it can be observed that at least one dimension of Management Information Systems (MIS) (Requirements for Applying MIS, Quality of MIS, and Use of MIS) has a statistically significant impact at a significant level ($\alpha \leq 0.05$) on HR management functions in Iraqi telecommunication companies. The test magnitude (F) reaches (109.852), which is statistically significant (0.00); it is higher than the tabulated (F) magnitude, which is statistically significant at the ($\alpha \leq 0.05$) level. Table (7) illustrates that integrating different dimensions of MIS has a statistically significant influence on improving HR management functions in Iraqi telecommunication companies at the ($\alpha \leq 0.05$) level. The correlation coefficient (R) reaches (0.819), indicating a high magnitude, suggesting that the correlation

between the sub-dimensions of MIS and HR management functions as a whole is statistically significant. The magnitude of (R²) reaches (0.670), indicating that MIS dimensions explain approximately 67.0% of the variations occurring in HRM functions as a whole.

- Results Related to Testing the Second Main Hypothesis (H02): There is no statistically significant influence at the significant level ($\alpha \leq 0.05$) of Management Information Systems (MIS) on Knowledge management in Iraqi telecommunication companies.

To verify the validity of the second main hypothesis, multiple regression analysis was employed to study the impact of MIS dimensions on knowledge management in Iraqi telecommunication companies.

Table (8) Results of Applying Multiple Regression Equation to Study the Impact of Management Information Systems (MIS) Dimensions on knowledge management in Iraqi Telecommunication Companies

Variable	Non-standard coefficients		Unified coefficients		Statistical significance	R	R ²	R ² Modified	F	Statistical significance
	B	Standard error	β	T						
Regression stability	1.953	0.110		17.742	0.000	0.832	0.691	0.686	*120.985	0.000
Application requirements	0.235	0.046	0.405	5.103	0.000					
Quality of system	0.140	0.055	0.224	2.546	0.012					
Using systems	0.182	0.049	0.269	3.685	0.000					

*At a significant level ($\alpha \leq 0.05$).

From the analysis of variance results, it can be observed that at least one dimension of Management Information Systems (MIS) (Requirements for Applying MIS, Quality of MIS, and Use of MIS) has a statistically significant influence at a significant level ($\alpha \leq 0.05$) on knowledge management in telecommunications companies in Iraq. The test magnitude (F) reaches (120.985), which is statistically significant (0.00); it is higher than the tabulated (F) magnitude, which is statistically significant at the ($\alpha \leq 0.05$) level. Table (8) illustrates that integrating different dimensions of MIS has a statistically significant influence on improving knowledge management in Iraqi telecommunication companies at the ($\alpha \leq 0.05$) level. The correlation coefficient (R) reaches (0.832), indicating a high magnitude, suggesting that the correlation between the sub-dimensions of MIS and knowledge management is statistically significant. The magnitude of (R²) reaches (0.691), indicating that MIS dimensions explain approximately 69.1% of the variations occurring in knowledge management. The table also shows a statistically significant influence at the ($\alpha \leq 0.05$) level for each dimension of MIS individually on knowledge management. Reviewing the magnitudes of (β) reveals that the dimension "Requirements for Applying MIS" had the most significant impact on knowledge management, with a magnitude of (β) of (0.405). The dimension "Use of MIS" ranked second in terms of impact on knowledge management, with a magnitude of (β) of (0.269), which is statistically significant. The dimension "Quality of MIS" ranked third and last, with a magnitude of (β) of (0.224), which is statistically significant.

- Results Related to Testing the Third Main Hypothesis (H03): There is no statistically significant influence at the significant level ($\alpha \leq 0.05$) of knowledge management on HR management functions in Iraqi telecommunication companies.

To verify the validity of the third main hypothesis, a simple regression analysis was used to study the impact of knowledge management on HR management functions in Iraqi telecommunication companies. The results were as follows:

Table (9) Results of Applying Simple Regression Equation to Study the Impact of knowledge management on HRM Functions in Iraqi Telecommunication Companies

	β	T	R	R ²	R ² modified	F	Statistical significance
Regression stability	0.193	43.984	0.960	0.922	0.921	*1934.605	0.000
Requirements for applying MIS	0.960						

*At a significant level ($\alpha \leq 0.05$).

Table (9) indicates that the coefficient of correlation (R) reaches (0.960), which is a high magnitude, indicating that the correlation between knowledge management and HR management functions is statistically significant. The magnitude of (R²) reaches (0.922), indicating that knowledge management explains approximately 92.2% of the variations occurring in HR management functions. Based on the foregoing, the third main hypothesis is supported in its alternative form, stating "There is a statistically significant influence at the significant level ($\alpha \leq 0.05$) of knowledge management on HR management functions in Iraqi telecommunication companies.

The Fourth Main Hypothesis (H04): There is no statistically significant influence at the significant level ($\alpha \leq 0.05$) of knowledge management as a mediating variable in the correlation among MIS and HR management functions in Iraqi telecommunication companies.

Testing this hypothesis, structural equation modeling analysis was employed using Amos V23 supported by SPSS to examine the direct and indirect influences of MIS on HR Management functions through knowledge management as a mediating variable. Path analysis was employed to determine the significance of the indirect influence measured through the mediating variable. Table (10) presents the results of this analysis.

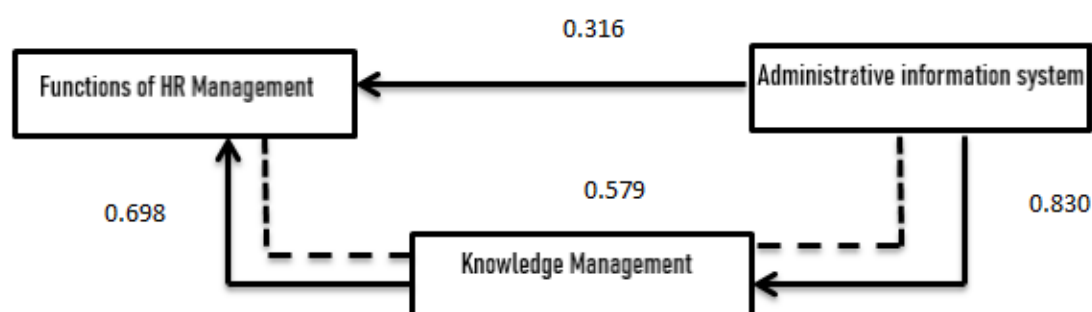
Table (10) Path Analysis to Study the Influence of Knowledge Management (as a Mediating Variable) on the Relationship between Management Information Systems and HRM Functions

Direction of impact	Total influence	Direct influence	C.R.	Sig(t)	Indirect influence
Independent to dependent	0.895	0.316	19.133	***	0.579
Independent to mediator	0.830	0.830	23.011	***	
Mediator to dependent	0.698	0.698	10.414	***	

Table (10) illustrates the magnitudes of direct and indirect impacts for the relationship of the mediator variable (knowledge management) on the relationship between MIS and HR management functions. By reviewing the direct influence magnitudes in the table, it is evident that the computed magnitude of the independent variable's impact on the dependent variable reached (0.316), whereas the computed

magnitude of the independent variable's influence on the mediator reached (0.830), and the direct influence magnitude of the mediator to the dependent variable reached (0.698). These impacts were represented using standardized magnitudes, where it is observed that all these influence magnitudes (coefficients) were statistically significant, as they were all less than 0.05 and simultaneously less than 0.001. Thus, they were symbolized by (***) indicating that there is an indirect influence of the mediator variable considering that all significant level magnitudes were statistically significant. This implies that there are partial mediators for knowledge management (as a mediator variable) on the relationship between MIS and HR management functions. Thus, the fourth main hypothesis is supported in the alternative form, stating "There is a statistically significant influence at the significant level ($\alpha \leq 0.05$) for knowledge management as a mediator variable in the relationship between MIS and HR management functions in Iraqi telecommunications companies.

Figure (2) illustrates the impact of knowledge management as a mediator variable on the correlation between management information systems and HRM functions in Iraqi telecommunications companies.



References:

- [1] Abu Al-Jadayel, H. (2012). *Human Capital*. Cairo: Center for Professional Expertise.
- [2] Al-Adwan, L. (2019). *The Impact of Knowledge Management Systems on Organizational Performance in Jordanian Telecommunication Companies*. Master's Thesis, Middle East University, Amman, Jordan.
- [3] Al-Hamadi, B; Abdulqawi, A; Mahdoub, A; Mohammed, A. (2023). The Impact of Management information systems on Strategic Success: A Field Study in Yemeni Islamic Banks in Aden Governorate. *Journal of Social Studies*, 29(3), 68-96.
- [4] Al-Khasawneh, Z Muhammad; F, Sa'id S. (2021). *The Impact of Human Resource Management Practices on Quality of Work Life: A Case Study of the Jordanian Electricity Distribution Company*. Master's Thesis, Al al-Bayt University, Mafraq, Jordan.
- [5] Andrews, M.; Smits, S. (2019). Using Tacit Knowledge Exchanges to Improve Teamwork. *ISM Journal of International Business*, 3(1), 15-23.
- [6] At-Talal, M Ahmed N. (2017). *The Degree of Impact of E-Learning on the Quality of Educational Outputs in Jordanian Universities from the Perspective of Faculty Members*. Master's Thesis, Yarmouk University, Irbid, Jordan.
- [7] Babaad, I. (2023). The Relationship between Knowledge Management Implementation and Organizational Excellence: A Field Study on Employees of the Emirate of Mecca Region. *Ramah Journal of Research and Studies*, 77, 381-424.
- [8] Hamoud, A. (2023). The Impact of Management information systems on Administrative Decision Making: A Field Study on Five-Star Hotels in Damascus. *Al-Baath University Journal, Series of Economic Sciences*, 45(26), 37-62.
- [9] Idris, A; Alian, A; Noor, A. (2023). Requirements of Management information systems and Their Impact on Organizational Performance through the Internal Environment as a Mediating Variable:

An Applied Study in the Ministry of Finance of Kasala State - Sudan. *International Journal of Economics and Business*, 13(4), 312-327.

- [10] Moon, Y.; Um, H.; Kim, M. (2019). *Social Network Analysis to Explore the Organizational Knowledge Transfer Patterns – From a Social Capital Perspective*. *Asia Life Sciences Supplement*, 20(1), 117-126.
- [11] Nowshade, K. (2015). Semantic Knowledge Management System Framework Integration from Mobile Devices. *Proceedings of the European Conference on Intellectual Capital*, pp. 157-164.
- [12] Obeidat, A. M; Wahiby, H, A; Alshammari, D, M; Alzu'bi, S, K; Hadrab, A, F; Samara, M, A. (2021). *The Moderate Role of Knowledge Sharing on the Effect of Human Capital in Job Empowerment*. *Ilkogretim Online*, 20(3), 1449-1459.
- [13] Rafieian-Isfahani, H; Peikari, H; Rafieyan-Isfahani, M. (2020). The Relationship between Motivations and Nurses' Intention to Share Knowledge. *Iranian Journal of Nursing & Midwifery Research*, 25(1), 53-57.