

# THE IMPACT OF INFORMATION TECHNOLOGY ON HUMAN RESOURCE DEVELOPMENT (An applied study on Iraqi universities)

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## Abstract

**Purpose:** This study explores the relationship between Information Technology and human resource development in the context of Iraqi universities in Diyala province. The objectives were to examine the impact of Information Technology dimensions (Physical components, Software, Communication Networks, Ability) on human resource development and provide recommendations for enhancing human resource development based on the findings. The study employed descriptive statistics and regression analysis to analyze the data collected from a sample of Iraqi universities in Diyala province.

The results revealed There is a statistically significant impact of using Information Technology on Human Resource Development within Iraqi universities in Diyala province.

Based on these findings, the study recommends that Iraqi universities in Diyala province Enhancing ICT Utilization, Human Resource Development Enhancement, Leveraging ICT for HRD.

**Design/methodology/approach:** The study used a descriptive-analytical approach to investigate the relationship between Information Technology (ICT) as an independent variable and Human Resource Development (HRD) as a dependent variable. Secondary data from various sources, including books, academic studies, and research articles, were used to establish the study's theoretical framework. Primary data for hypothesis testing were gathered through a field survey questionnaire administered to employees in Diyala Province's Iraqi universities, utilizing a comprehensive sampling method. Statistical methods were then applied to the initial data to summarize and describe the correlations and impacts between the study variables.

**Keywords:** Information Technology, Human resource development, Iraqi universities in Diyala province.

## Introduction

In today's dynamic and increasingly digitized business environment, Information Technology (ICT) has emerged as a transformative force, reshaping not only the ways organizations operate but also the very nature of human resource development (HRD). This research embarks on a comprehensive exploration of the

profound and multifaceted impact of ICT on HRD, a pivotal facet of modern organizational strategies. As technology rapidly advances, it redefines the parameters of HRD, presenting both opportunities and challenges for fostering a skilled and adaptable workforce.

The fundamental purpose of this research is to dissect the intricate nexus between technology and HRD, unraveling how ICT mechanisms have revolutionized the acquisition of skills, enabled continuous learning, and ultimately contributed to the holistic growth and development of employees. By traversing this captivating intersection, our study endeavors to provide invaluable insights into the dynamic interplay of ICT and HRD, shedding light on how forward-thinking organizations can strategically leverage technology to optimize HRD initiatives. Our journey takes us through the evolution of HRD practices, the integration of digital platforms, and the cultivation of a culture of learning in the digital age. We aim to explore both the successes and the obstacles encountered by organizations as they navigate this transformative landscape. As we venture deeper into the digital era, this research promises to unveil the intricacies of how ICT can enhance not only employee competencies but also job satisfaction, ultimately contributing to organizational success in the 21st century.

Previous Studies:

### **2.1 Studies in Information Technology:**

Study (Law, et al, 2023). the purpose of this study is to propose recommendations for future research to further narrow the theory-practice gap. Personal experiences along with evidence from the literature provide a foundation for discussion, which is further enriched by integrating industry practitioners' points of view. Single-perspective and technology adoption studies have dominated ICT research in the hospitality literature. Technology effectiveness has often been measured indirectly. Oversimplifying technological issues has limited the generalizability of research findings.

Study (Acosta-Prado, & Tafur-Mendoza, 2022). aims to examine the mediating role of dynamic capabilities in the relationship between ICT and sustainable performance. This study was empirical, associative and explanatory, following a latent variable design. The sample of the study consisted of partners, founders, executives and promoters from 102 Colombian new technology-based firms selected through purposive non-probabilistic sampling. Variance-based structural equation modeling or partial least squares was used for the statistical data analysis. A higher-order model was tested, corroborating that ICT was composed of two dimensions (use and acquisition), dynamic capabilities were composed of three dimensions (absorption, innovation and adaptation), while sustainable performance showed a unidimensional structure. As for the research hypotheses, all the direct effects were supported, as well as the mediating effect of dynamic capability in the relationship between ICT and sustainable performance, this being a complementary mediation

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Study (Ismail, et al., 2021). aimed to explore the impact of social coding knowledge and proactive capability on the digital transformation of businesses facilitated by Information Technology/Information Systems (IT/IS) in the context of Indonesia. The study found that social coding knowledge directly influences the proactive capability of IT/IS and the digital transformation of enterprises. Social coding knowledge supports the proactive capability of IT/IS, but the direct relationship does not support the digital transformation of corporate businesses. Furthermore, the proactive capability of IT/IS positively impacts the digital transformation of enterprises. The mediator's role plays a crucial part in maximizing coding knowledge practices and enhancing digital methods for transforming enterprise business processes. These results provide valuable insights for managers in leveraging knowledge resources and emerging technology for achieving digital transformation in corporate businesses.

## **2.2 Studies in Human resource development:**

Study (Pham-Duc, et al., 2023). aims to analyze the development of global human resource development (HRD) articles published in journals indexed in the Scopus database since 1960s until present time. A publication collection of 1,905 articles collected from the Scopus database was downloaded and analyzed by using bibliometric techniques available in the VOSviewer and Biblioshiny software. The study identifies three HRD research stages: seeding (1962-1989), growth (1990-2007), and development (2008 onwards). The USA and the UK contributed the most articles (30.02% and 12.55%) and received the highest citations (43.82% and 19.54%). Most prolific scholars and top articles come from these countries, and Emerald Group is the primary publishing house with five out of ten top journals.

Study (Mohd Thas Thaker, et al., 2023). aims to propose a viable alternative model for human capital development (HCD), termed as the integrated cash waqf micro enterprises investment (ICWME-I) model, which is expected to contribute to the development of micro enterprises in Malaysia. This is a conceptual paper for the development of the ICWME-I model. It is purely qualitative in nature, using content analysis. It comprehensively reviews the literature related to HCD issues faced by micro enterprises and existing studies related to cash waqf (Islamic endowment) to construct the ICWME-I model. The ICWME-I model is designed for micro enterprise Human Capital Development (HCD). It aims to use cash waqf funds to build affordable modern training centers, subsidize participation fees, and offer various educational and training programs to enhance the skills and capacity of micro enterprises. The study also addresses potential challenges associated with this model.

## **2.3 Studies in Information Technology and Human resource development:**

Study (Gonzalez, et al, 2020). The aim of this study is to review the scientific literature where tourism, ICTs, and human resources converge. This is accomplished by analyzing articles published in relevant journals that are indexed

in the Web of Science database. A total of 60 articles published over a span of 31 years were examined based on various criteria, including research methodology, statistical techniques employed, topics covered, technologies discussed, authors, and countries of origin. The study categorized the topics under investigation into four broad areas: technology and employees, technology and HR processes, technology and outcomes, and technology and organizational structure. The first category, which focuses on how employees interact with technology, garnered the most attention.

#### **2.4 Commentary on Previous Studies:**

After reviewing the most important studies reached and related to the subject of the current study, and reviewing and analyzing the results of those studies can draw some conclusions on the aspects of agreement and the difference between the current study and previous studies and get out of the research gap, as follows:

Compatibility with previous studies:

Through a review of previous studies, it is clear that they are similar to the current study in dealing with the issue of Information Technology and Human resource development in different organizations and business sectors. Most of the previous studies emphasized the importance of these issues in business organizations in general.

#### **Research Gap and Difference in the Current Study:**

A review of previous studies revealed that there is diversity in the applied fields, but there was a shortage and deficiency in dealing with Iraqi universities in Diyala province. So, the research gap is as follows:

Deficiency in the study the Information Technology in Iraqi universities in Diyala province.

Deficiency in the study of Human resource development in Iraqi universities in Diyala province.

Deficiency in the study the Information Technology and its impact on Human resource development in Iraqi universities in Diyala province.

Therefore, the current study will address this deficiency by addressing the issue of Information Technology and its relationship to Human resource development in Iraqi universities in Diyala province.

Study Problem:

The lack of technical infrastructure is one of the most important challenges facing these universities. Due to financial resource constraints and limited financing, private universities find it difficult to provide the necessary hardware and software to implement information technology efficiently.

The lack of specialized human resources in the field of information technology is another challenge. It is difficult for these universities to recruit and retain qualified IT professionals, which negatively affects their ability to effectively implement and manage technology solutions.

Modern and interactive teaching strategies require continuous training and development of faculty and administrative staff. This places additional pressures on the human and financial resources of private universities.

The main problem in this study is how to overcome these challenges and invest information technology effectively in the development of human resources in private universities in Iraq.

Therefore, this study seeks to answer the following questions:

What is the strength of the Information Technology in Iraqi universities in Diyala province?

What is the strength of Human resource development in Iraqi universities in Diyala province?

Does Information Technology affect Human resource development at Iraqi universities in Diyala province?

Objectives of Study:

The study aims to achieve the following objectives:

Standing on the strength of the Information Technology in Iraqi universities in Diyala province.

Measuring Human resource development of Iraqi universities in Diyala province.

Determine the extent of the impact of Information Technology on Human resource development in Iraqi universities in Diyala province.

Presenting a number of recommendations and proposals to officials in Iraqi universities in Diyala province based on the findings of the study, which can be generalized and used in practical application.

Study hypotheses:

The main hypothesis of the study is: "There is a statistically significant impact of Information Technology (ICT) usage on the development of human resources in Iraqi universities in Diyala province." This hypothesis leads to the following sub-hypotheses:

There is a statistically significant impact of ICT usage on employment development in Iraqi universities in Diyala province.

There is a statistically significant impact of ICT usage on training and development in Iraqi universities in Diyala province.

There is a statistically significant impact of ICT usage on compensation development in Iraqi universities in Diyala province.

There is a statistically significant impact of ICT usage on performance evaluation in Iraqi universities in Diyala province.

Study Significances:

The importance of the current study is due to its scientific and practical additions as follows:

The importance of this study lies in an attempt to contribute to bridging the research gap of studies and research on the concept of Information Technology, specifically with regard to organizational practices that contribute to achieving Human resource development, and the study is also a response to what many

previous studies called for in conducting more studies and research on this Topics, and because of their great importance in enriching the academic library and scientific research centers, especially those interested in administrative studies. This study can also provide a database to help researchers and scholars to conduct more research in this field.

The study deals with one of the modern administrative approaches (the Information Technology approach), which may have a major role in developing the competitiveness of companies. Determining the expected benefits and advantages that result from the application of Information Technology mechanisms to increase competitiveness.

### **Study Variables:**

#### **7.1 Independent variable: Information Technology.**

Information technology is defined as the tools, methods, and techniques used to transform inputs into outputs. It is an effective tool that assists in providing information and delivering it to organizations to accomplish and enhance administrative processes at all organizational levels. This includes hardware, equipment, human resources, and software (Abdelmagid, 2017).

The Information Technology variable were measured through the following dimensions

**Physical components:** It is defined as all the hardware and physical materials used in information processing, such as computers, data storage media, and other tangible objects that can be used to record data from paper documents to magnetic disks.

**Software:** It relies on the manufacturer's software, other computer users, and software can be categorized into two types: application software and operating system software.

**Communication Networks:** Communication is defined as the transmission of signals through a medium from a sender to a receiver. The signal includes a message composed of data and information, and the signal travels through a communication medium, which is anything that carries the signal from the sender to the receiver.

**Databases:** This can be translated to English as: "It is a collection of related data or information stored on data storage devices and media such as a computer's hard drive, floppy disks, or tapes."

#### **7.2 Dependent Variable: Human resource development.**

Human resource development can be defined as a continuous and systematic activity or process aimed at providing the basic knowledge foundation for human resources, continuously educating and developing them, increasing their knowledge, enhancing their skills, and preparing them adequately for the tasks assigned to them. This enables them to work diligently and be aware of what they are doing to maximize productivity within the organization and achieve its goals.

The human resource development variable was measured through the following dimensions: (Employment Development- Training and Development- Compensation Development- Performance Evaluation). The basic concepts of these dimensions can be explained as follows:

**Employment Development:** Organizations using recruitment development often advertise job openings online, which is efficient, cost-effective, and aligns with employee and organizational goals. Selection typically involves personal interviews and offering preferred choices to candidates.

**Training and Development :**Environmental training provides members of the organization and managers with the skills and knowledge needed to enhance environmental awareness by learning best practices.

**Compensation Development:** Salary and rewards are key for retaining, attracting, and motivating employees to achieve organizational goals. Rewarding employees often leads to organizational success and can lead to increased responsibilities as a result of task completion and skill acquisition.

**Performance Evaluation:** Enhancing performance management with diverse goals translates into standards and behavioral indicators defining all-level employee performance. Identifying goals in evaluations fosters awareness and encourages subordinates to participate in training and learning.

The following form can be presented to represent the general framework of the study, as follows:

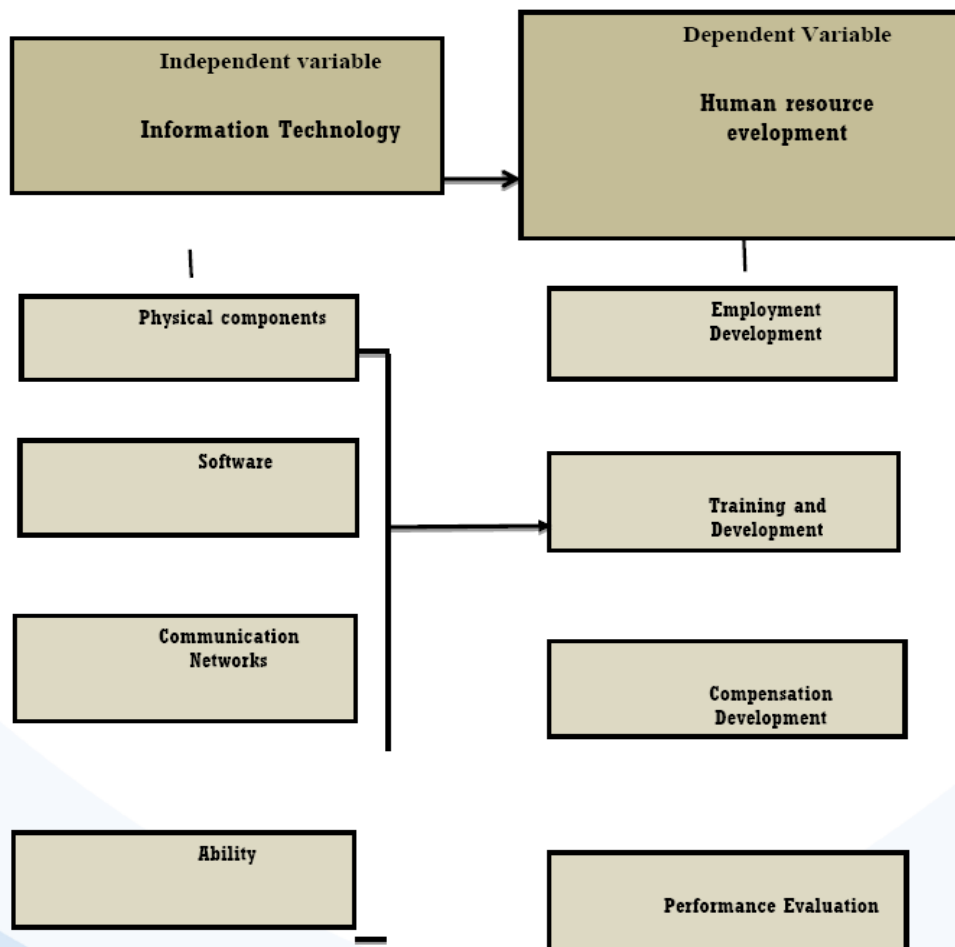


Figure (1): Model framework of the study.

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**Study Design:**

Depending on the nature of the subject of the study and the information that must be obtained to reveal the effect of Information Technology (as an independent variable) on Human resource development (as dependent variable), and through the questions that the study seeks to answer, this study relied on the descriptive analytical approach, which is "a way to describe and measure the phenomenon studied by collecting, classifying, and analyzing the problem.

**Study Procedures:**

Two types of data were used to achieve this approach from the following sources:

**1- Secondary Data:**

It is the data obtained to build theoretical framework of the study, where it was relied on to identify theoretical background of the study, on the various references of books and articles and previous studies of academic theses of the relevant and published research, which dealt with the topics of Information Technology and Human resource development.

**2- Primary Data:**

These data were collected in the field through the survey list in the field study to test the validity of the assumptions on which the study was based. By obtaining this data from Employees in the field of Iraqi universities in Diyala province.

**Population and Sample Design:**

The academic community in Diyala province, Iraq, comprises individuals working in administrative and academic positions at various universities. These universities include government-run institutions such as Diyala University, which encompasses thirteen faculties specializing in both scientific and humanities disciplines. It also houses several research and consultancy centers. Additionally, there is the Central Technical University.

In the private sector, there is Yarmouk University, which consists of seven departments: English Language Department, Law Department, Computer Science Department, Computer Technology Engineering Department, Medical Analysis Technology Department, Dentistry Department, and Pharmacy Department. Imam Jafar Al-Sadiq University and Al-Rafidain University College are also part of the academic landscape.

A stratified random sample was selected from the staff of both government and private universities in Diyala province. The sample size can be determined using the following equation (Abdul-Hameed, 2011: 119): [Please note that the equation is not provided in the original text, so I cannot provide the specific formula here (Sekaran, Bougie, 2010):

$$n = \frac{NP(1 - P)x^2}{(N - 1)d^2 + P(1 - P)x^2}$$



whereas:

n: Sample size required.

N: Size of the study population.

P: The ratio of the community is equal to.

d<sup>2</sup>: The percentage of error that can be exceeded and the maximum value is 0.05.

x<sup>2</sup> 2: the value of the kai square with one degree of freedom = 3.841 at 95% confidence level or 5% significance level.

Table (1): Distribution of the Study Sample Among the Employees of Iraqi Universities in Diyala Province.

Universities	Administrative Jobs	Academic Jobs	Total	Sample	Response
Population and Sample					
Government Universities	2114	1157	3271	207	200
Private Universities	1173	1237	2410	152	150
<b>Total</b>	<b>3287</b>	<b>2394</b>	<b>5681</b>	<b>359</b>	<b>350</b>

Source: Compiled by the researcher based on data from the Iraqi Ministry of Higher Education and Scientific Research, 2020.

The questionnaire was distributed to the individuals within the study sample, resulting in 350 valid responses for statistical analysis. The sample was distributed among employees in administrative and academic positions at Iraqi universities in Diyala Province. The following table illustrates the distribution of the study sample among respondents according to demographic variables, including gender, education level, job nature, and years of experience:

Table (2): Distribution of the Study Sample by Demographic Variables (n = 350)

Personal Variables			Frequency	Percentage (%)
Gender:	1-	Male	192	54.85
	2-	Female	158	45.15
Job Nature:	1-	Administrative	197	56.28
	2-	Academic	153	43.71
Gender:	1-	Less than High School	28	8.00
	2-	High School	59	16.85
	3-	University	195	55.71
	4-	Postgraduate Studies	68	19.42
Gender:	1-	Less than 5 years	101	28.85
	2-	to less than 10 years 5	187	53.42
	3-	years or more 10	62	17.71

As observed from the previous table (Table 10), the study included a vocabulary of 350 respondents who are employees at the studied universities. The table highlights the following key findings:

Approximately 55% of the total sample consists of males, while approximately 45% are females.

Roughly 56.2% of the total study sample work in administrative positions, and approximately 43.8% work in academic positions.

Around 55.7% of the total study sample hold university-level qualifications, followed by approximately 19.4% of the sample holding postgraduate degrees such as doctorates, master's degrees, and postgraduate diplomas.

Approximately 53.4% of the total study sample have been employed at the university for more than 5 years but less than 10 years, and about 28.8% of the sample have been employed for less than 5 years. This indicates diversity in the study's vocabulary, demonstrating that the sample is representative of the academic community.

### Descriptive statistics

the Information Technology (ICT) variable:

The strength of the dimensions of the independent variable (Information Technology) was measured to assess their availability, and these dimensions were ranked in order of importance from the perspective of the study participants, as follows:

Table (3): Descriptive Statistics for the Information Technology Variable.

N	Phrases	Mean	Standard Deviation	Importance Ranking
1	The necessary computer equipment for performing job tasks is available within the organization.	4.378	0.773	1
2	The devices are of advanced and modern technology to leverage information and work with the latest and most precise methods.	3.525	0.799	3
3	The used devices provide fast and accurate data processing.	3.156	0.748	4
4	Adequate access to phones, fax machines, email, and the internet is available.	3.866	0.764	2
<b>Physical components</b>		<b>3.731</b>	<b>0.732</b>	<b>first</b>
1	The software used by the organization I characterized by ease of learning, operation, and guidance.	3.628	0.754	1
2	The software used by the organization features modern and advanced technological requirements.	3.481	0.865	2

N	Phrases	Mean	Standard Deviation	Importance Ranking
3	The software and methods contribute to the administrative decision-making process and align with the nature of the work in the organization.	3.369	0.771	3
4	Electronic programs used enable multiple users to communicate simultaneously.	3.216	0.863	4
5	The available electronic programs have the ability for flexible information exchange among system users.	3.138	0.899	5
<b>Software</b>		<b>3.366</b>	<b>0.713</b>	<b>fourth</b>
1	The organization utilizes communication networks from the Internet, Intranet, and Extranet	4.147	0.679	1
2	The organization relies on the network as a means of information exchange between all departments through modern communication methods.	3.981	0.741	2
3	The organization is committed to providing network security to protect information and data and maintain their confidentiality.	3.431	0.876	3
4	The organization relies on the Internet (email) for communication and correspondence with its employees to reduce paper usage and waste.	3.306	0.795	4
5	Video conferencing services are available within the organization (online video broadcasting).	3.181	0.927	5
<b>Communication Networks</b>		<b>3.609</b>	<b>0.839</b>	<b>second</b>
1	The organization relies on a database system to store vast amounts of data.	4.066	0.952	1
2	The organization adopts the principle of electronic archiving (digital technological transformations) for records and data to enable fast retrieval of information when needed.	3.419	0.816	3
3	Database systems contribute to ease of information exchange between different specialties and departments within the organization.	3.472	0.911	2
4	The organization provides its employees with an advanced database and precise electronic system to facilitate their work.	3.303	0.945	4
<b>Databases</b>		<b>3.565</b>	<b>0.877</b>	<b>third</b>
<b>Overall Indicators</b>		<b>3.567</b>	<b>0.790</b>	

It appears that, according to the study participants' perspective, the most available dimensions of Information Technology (ICT) are ranked as follows: First, following the 'Physical Components' with an average of 3.73. Second, following 'Communication Networks' with an average of 3.36. Third, following 'Database Systems' with an average of 3.56. Finally, last but not least, following 'Software' with an average of 3.36.

Based on this, there is a high level of emphasis on the use of Information Technology in Iraqi universities in Diyala province. The opinions are leaning towards agreement on the dimensions of ICT, with an overall average of 3.56

Human resource development variable:

The dimensions of the dependent variable (Human Resource Development) were measured to assess their availability, and these dimensions were ranked in order of importance from the perspective of the study participants, as follows:

Table (4): Descriptive Statistics for the Human resource development Variable.

N	Phrases	Mean	Standard Deviation	Importance Ranking
1	The organization has a clear and defined plan with objectives for electronically attracting human resources.	2.753	0.774	5
2	Human resource needs are planned using electronic programs.	3.166	0.960	1
3	Vacant positions are advertised through the organization's electronic portal and on social media platforms.	2.788	1.002	4
4	Job applications are submitted electronically through the organization's portal.	2.837	0.766	3
5	Electronic interviews are used in the recruitment process.	2.020	0.974	7
6	The organization utilizes an electronic testing system for job applicants.	2.344	0.847	6
7	The organization relies on an electronic selection system to screen job applications.	3.027	1.011	2
<b>Employment Development</b>		<b>2.705</b>	<b>0.909</b>	<b>fourth</b>
1	The organization has a clear methodology for determining the actual training needs of employees, relying on modern electronic programs.	3.153	0.687	5
2	Employees are trained using various electronic training methods.	3.769	0.813	2
3	Employees are trained for the International Computer Driving License (ICDL).	3.494	0.864	3
4	There is diversity and variety in the electronic training methods applied by the organization according to the needs and goals of the work and the employees.	3.081	0.946	6
5	Training programs related to information technology are implemented across all specialties.	4.006	0.802	1
6	The organization announces seminars and training courses on its website.	3.346	0.889	4
<b>Training and Development</b>		<b>3.474</b>	<b>0.833</b>	<b>first</b>
1	The payment of dues to employees is carried out electronically.	4.069	0.764	1

N	Phrases	Mean	Standard Deviation	Importance Ranking
2	Clear and objective criteria exist for distributing bonuses and incentives, which are reviewed electronically.	2.926	0.689	3
3	The organization possesses information on employee performance levels in their roles, enabling it to determine the type of rewarding compensation.	2.784	0.938	5
4	Employees are satisfied with the outcomes of the compensation system in place.	2.898	0.859	4
5	Ongoing evaluations of salaries/wages are conducted to determine bonus rates and salary levels.	2.973	0.712	2
<b>Compensation Development</b>		<b>3.130</b>	<b>0.791</b>	<b>second</b>
1	Human resource performance is continuously monitored and evaluated.	3.616	0.861	1
2	Issues related to electronic human resource management are addressed promptly when they arise.	2.934	0.864	3
3	The quality of decisions related to human resource management is assessed using available electronic programs.	2.663	0.770	5
4	The organization has electronic programs for monitoring and evaluating the quality of human resource performance.	3.234	0.806	2
5	Performance evaluations motivate employees in the organization to achieve excellence.	2.877	0.846	4
<b>Performance Evaluation</b>		<b>3.064</b>	<b>0.838</b>	<b>third</b>
<b>Overall Indicators</b>		<b>3.093</b>	<b>0.842</b>	

According to the study participants' perspective, the most available and important dimensions of Human Resource Development are as follows: In the first rank comes 'Training and Development' with an average of 3.47, followed by 'Compensation Development' in the second rank with an average of 3.13, then 'Performance Evaluation' in the third rank with an average of 3.03, and finally 'Recruitment Development' in the fourth rank with an average of 2.70. Based on this, Human Resource Development is considered to have a high strength and a significant average from the study participants' point of view, and opinions tend to agree on the dimensions of the Human Resource Development variable, with an overall average of 3.09.

Test the Hypotheses of the Study:

The objective of the study is to examine the validity of the main hypotheses of the study and its sub-hypotheses. These tests are the main objective of the study, through which the researcher seeks to know the essence, strength, and direction of this effect.

The main hypothesis: "There is a statistically significant impact of Information Technology (ICT) usage on the development of human resources in Iraqi universities in Diyala province". Several hypotheses emerge from this main hypothesis:

Testing the first subsidiary hypothesis:

The one that states the following "There is a statistically significant impact of using Information Technology on employment development in Iraqi universities in Diyala province".

To test the first subsidiary hypothesis of the main hypothesis, simple linear regression was used to study the impact of Information Technology (ICT) as an independent variable on Employment Development as one of the dimensions of the dependent variable. The results were as follows:

Table (5): The results of the simple linear regression analysis for the impact of Information Technology (ICT) on Employment Development.

Parameter	Estimated Value B	Standard Error	Standard Error Coefficient Beta	T Statistic	P	Statistical Significance
Intercept	1.701	0.121		14.057	0.077	Not Significant
Employment Development	0.412	0.030	0.172	13.733		
Correlation Coefficient (R) = 0.172    Coefficient of Determination (R <sup>2</sup> ) = 0.029  Standard Error of the Model = 0.34    F-Statistic Value = 212.66  Degrees of Freedom = (147, 3)    Significance Level = 0.077 Function at 0.01 Level						

From the previous Table the following observations can be made:

There is a weak negative and statistically non-significant relationship between Information Technology (ICT) and Employment Development, as indicated by the correlation coefficient (R) value of (17.2%).

According to the coefficient of determination (R<sup>2</sup>), the use of Information Technology (ICT) explains approximately (2.9%) of the variance in Employment Development, while approximately (97.1%) can be attributed to the standard error in the equation or perhaps the omission of other independent variables in the regression model.

The computed F-test value is (212.66).

Based on the above results of testing the validity of the first subsidiary hypothesis of the main hypothesis of the study, it is evident that the significance level is (0.077), which is greater than the significance level (0.01). Therefore, the hypothesis is rejected, indicating that there is no statistically significant impact of

using Information Technology (ICT) on Employment Development in Iraqi universities in Diyala province.

Testing the second subsidiary hypothesis:

The one that states the following " There is a statistically significant impact of using Information Technology on training and development at Iraqi universities in Diyala province".

To test the second sub-hypothesis of the first main hypothesis, simple linear regression was used to study the impact of Information Technology as an independent variable on training and development as one of the dimensions of the dependent variable, and the results were as follows:

Table (6): The results of simple linear regression analysis for the impact of Information Technology on training and development.

Parameter	Estimated Value B	Standard Error	Standard Error Coefficient Beta	T Statistic	P	Statistical Significance
Intercept	1.893	0.111		17.082	0.000	Significant
training and development	0.419	0.028	0.205	14.723		
<p><b>Correlation Coefficient (R) = 0.705    Coefficient of Determination (R<sup>2</sup>) = 0.497</b></p> <p><b>Standard Error of the Model = 0.33    F-Statistic Value = 114.759</b></p> <p><b>Degrees of Freedom = (146, 4)    Significance Level = 0.000 Function at 0.01 Level</b></p>						

From the previous Table, the following can be observed:

There is a strong negative and statistically significant relationship between Information Technology (ICT) and training and development, with a correlation coefficient (R) value of (70.5%).

According to the coefficient of determination (R<sup>2</sup>), the use of ICT explains approximately (49.7%) of the variance in training and development, while the remaining proportion (50.3%) can be attributed to standard error in the equation or possibly the exclusion of other independent variables in the regression model.

The calculated value of the "F" test (F) is (114.759), which is statistically significant at the 0.01 level. This indicates the quality of the relationship model and the reliability of relying on it without errors.

From the above results of testing the validity of the second sub-hypothesis of the main study hypothesis, it is evident that the significance level is (0.000), which is lower than the significance level of (0.01). Therefore, the hypothesis is accepted,

meaning that there is a statistically significant impact of using Information Technology on training and development at Iraqi universities in Diyala province.

Testing the third subsidiary hypothesis:

The one that states the following " There is a statistically significant impact of using Information Technology on compensation development at Iraqi universities in Diyala province".

To test the third sub-hypothesis of the main hypothesis, simple linear regression was used to study the impact of Information Technology as an independent variable on compensation development as one of the dimensions of the dependent variable, and the results were as follows:

Table (7): The results of simple linear regression analysis for the impact of Information Technology on compensation development.

Parameter	Estimated Value B	Standard Error	Standard Error Coefficient Beta	T Statistic	P	Statistical Significance
Intercept	2.363	0.090		26.397	0.000	Significant
compensation development	0.329	0.025	0.462	13.077	0.000	Significant
<p><b>Correlation Coefficient (R) = 0.462    Coefficient of Determination (R<sup>2</sup>) = 0.213</b></p> <p><b>Standard Error of the Model = 0.50    F-Statistic Value = 171.541</b></p> <p><b>Degrees of Freedom = (147, 7)    Significance Level = 0.000 Function at 0.01 Level</b></p>						

From the previous Table, the following can be observed:

There is a statistically significant negative relationship between Information Technology (ICT) and compensation development, with a correlation coefficient (R) value of (46.2%).

According to the coefficient of determination (R<sup>2</sup>), the use of Information Technology explains approximately (21.3%) of the variance in compensation development, while the remaining proportion (78.7%) can be attributed to standard error in the equation or possibly the exclusion of other independent variables in the regression model.

The calculated value of the "F" test (F) is (171.541), which is not statistically significant at the 0.01 level.

From the above results of testing the validity of the third sub-hypothesis of the main study hypothesis, it is evident that the significance level is (0.00), which is lower than the significance level of (0.01). Therefore, the hypothesis is accepted,



meaning that there is a statistically significant impact of using Information Technology on compensation development at Iraqi universities in Diyala province.

Testing the fourth subsidiary hypothesis:

The one that states the following "There is a statistically significant impact of using Information Technology on performance evaluation at Iraqi universities in Diyala province".

To test the fourth sub-hypothesis of the main hypothesis, simple linear regression was used to study the impact of Information Technology as an independent variable on performance evaluation as one of the dimensions of the dependent variable, and the results were as follows:

Table (8): The results of simple linear regression analysis for the impact of Information Technology on performance evaluation.

Parameter	Estimated Value B	Standard Error	Standard Error Coefficient Beta	T Statistic	P	Statistical Significance
Intercept	2.177	0.091		24.043	0.137	Not Significant
performance evaluation	0.367	0.024	0.271	14.978		
<p>Correlation Coefficient (R) = 0.271    Coefficient of Determination (R<sup>2</sup>) = 0.073</p> <p>Standard Error of the Model = 0.33    F-Statistic Value = 224.354</p> <p>Degrees of Freedom = (147, 3)    Significance Level = 0.137 Function at 0.01 Level</p>						

From the previous Table, the following can be observed:

There is a statistically insignificant weak negative relationship between Information Technology (ICT) and performance evaluation, with a correlation coefficient (R) value of (27.1%).

According to the coefficient of determination (R<sup>2</sup>), the use of Information Technology explains approximately (7.3%) of the variance in performance evaluation, while about (92.7%) can be attributed to standard error in the equation or possibly the exclusion of other independent variables in the regression model.

The calculated value of the "F" test (F) is (224.354), which is statistically insignificant.

From the above results of testing the validity of the fourth sub-hypothesis of the main study hypothesis, it is evident that the significance level is (0.137), which is higher than the significance level of (0.01). Therefore, the hypothesis is rejected, meaning that there is no statistically significant impact of using Information Technology on performance evaluation at Iraqi universities in Diyala province.

**Discussion:**

The provided study excerpt by Law et al. (2023) outlines its primary goal of proposing recommendations to narrow the theory-practice gap in the context of Information Technology (ICT) in hospitality. It draws on personal experiences, existing literature, and industry practitioners' perspectives to enrich its discussions. The passage highlights a dominance of single-perspective and technology adoption studies in prior research, often resulting in indirect measurements of technology effectiveness and limiting the generalizability of research findings. This suggests the study's commitment to addressing these limitations and fostering a more comprehensive understanding of ICT's role in the hospitality industry.

The study by Pham-Duc et al. (2023) conducts a comprehensive analysis of the evolution of global Human Resource Development (HRD) articles over time, spanning from the 1960s to the present. By employing bibliometric techniques, the researchers categorize HRD research into three distinct stages: seeding, growth, and development. Notably, the USA and the UK emerge as dominant contributors in terms of both publications and citations, underscoring their significant influence on HRD literature. The study also highlights the prominent role of the Emerald Group as a primary publishing house and identifies prolific scholars and top articles primarily originating from these two countries. This research provides valuable insights into the historical development and key players in the field of HRD.

The study by Mohd Thas Thaker et al. (2023) presents a qualitative conceptual paper introducing the Integrated Cash Waqf Micro Enterprises Investment (ICWME-I) model, designed to enhance Human Capital Development (HCD) in Malaysian micro enterprises. Through content analysis and a thorough review of literature on HCD challenges in micro enterprises and cash waqf, the study constructs the ICWME-I model. This model leverages cash waqf funds to establish affordable modern training centers, subsidize participation fees, and offer various educational and training programs, aiming to bolster the skills and capacities of micro enterprises. The study also acknowledges potential challenges associated with implementing this innovative approach. Overall, it contributes to discussions on HCD strategies within the context of Islamic finance and cash waqf in Malaysia's micro enterprise sector.

Acosta-Prado and Tafur-Mendoza's 2022 study examines the mediating role of dynamic capabilities between ICT and sustainable performance in Colombian tech firms. They employ structural equation modeling and find that dynamic capabilities enhance the relationship between ICT and sustainable performance. This research highlights the importance of dynamic capabilities in achieving sustainability through ICT adoption in these firms.

The study conducted by Ismail et al. (2021) investigates the impact of social coding knowledge and proactive IT/IS capability on digital transformation in Indonesian businesses. The findings reveal that social coding knowledge positively influences the proactive capability of IT/IS but doesn't directly translate into digital transformation. However, a proactive IT/IS capability positively impacts digital

transformation. The study underscores the role of mediation in maximizing coding knowledge practices and enhancing digital methods for business process transformation. Ultimately, these insights are valuable for managers, emphasizing the importance of leveraging knowledge resources and emerging technology to facilitate digital transformation in corporate settings.

The study conducted by Gonzalez et al. (2020) conducts a thorough review of scientific literature that explores the convergence of tourism, Information and Communication Technologies (ICTs), and human resources. This review analyzes 60 articles published over 31 years, considering various criteria such as research methodology, topics covered, technologies discussed, and more. The research categorizes the topics into four broad areas, with a particular emphasis on how employees interact with technology. This analysis sheds light on the evolving landscape of these intersecting fields and highlights the significant attention given to the dynamic between employees and technology in the context of tourism and human resources.

### **Conclusion:**

The study has yielded several results that can contribute to addressing the research problem, answering its questions, and testing its hypotheses. The researcher classified the results of the field study according to the variables established for the study on the impact of Information Technology (ICT) on Human Resource Development. This classification aims to provide greater clarity, especially when formulating relevant and applicable recommendations for each variable. The results are as follows:

The current study has found that there is a high level of interest in the use of Information Technology (ICT) within Iraqi universities in Diyala province, according to the perspective of the employees. Opinions tend to favor the dimensions of this variable, with an average of 3.56. It has been revealed that the dimensions with the highest availability within Iraqi universities in Diyala province are, in order: First, 'Physical Components.' Second, 'Communication Networks.' Third, 'Database Systems.' And fourth and last, 'Software.'

The study also found that the strength of Human Resource Development within Iraqi universities in Diyala province, from the perspective of the employees, was at a moderate level, with an average score of 3.09. Opinions tend to agree on the dimensions of this variable. The dimensions with the highest availability are, in order: First, 'Training and Development.' Second, 'Compensation Development.' Third, 'Performance Evaluation.' And fourth and last, 'Recruitment Development.'

There is a statistically significant impact of using Information Technology on Human Resource Development within Iraqi universities in Diyala province.

There are statistically significant differences in the opinions of study participants based on personal and job-related variables regarding Human Resource Development within Iraqi universities in Diyala province.

**Practical Implications:**

Based on the results obtained from the study, several recommendations can be formulated to address the research problem and leverage the findings:

**Enhancing ICT Utilization:** Given the high level of interest and favorability towards ICT dimensions, it is recommended that Iraqi universities in Diyala province continue to invest in and promote the use of Information Technology. This should include regular updates and improvements to physical components, communication networks, database systems, and software to ensure they remain up-to-date and efficient.

**Human Resource Development Enhancement:** To elevate the level of Human Resource Development within the organization, it is advisable to focus on the dimensions with slightly lower availability, such as 'Recruitment Development.' Implement strategies and programs aimed at improving the recruitment process to attract and retain top talent. Additionally, continue emphasizing training and development, compensation development, and performance evaluation to maintain and enhance the current positive perceptions.

**Leveraging ICT for HRD:** Recognizing the statistically significant impact of ICT on Human Resource Development, the organization should strategically integrate technology into HRD processes. This might involve implementing advanced e-learning platforms, online performance evaluation systems, and other digital tools to streamline and enhance HRD activities.

**Customized HRD Approaches:** Considering the statistically significant differences in opinions based on personal and job-related variables, it is recommended to adopt a more personalized approach to HRD. Tailor training, compensation, and performance evaluation programs to accommodate the varying needs and preferences of different employee groups. This could lead to more effective and inclusive HRD practices.

**Ongoing Assessment and Adaptation:** Continuously monitor and assess the impact of ICT on HRD and the effectiveness of customized HRD approaches. Regularly gather feedback from employees to gauge their satisfaction and make necessary adjustments to HRD strategies accordingly.

By implementing these recommendations, Iraqi universities in Diyala province can further enhance its HRD practices and fully capitalize on the potential of Information Technology for organizational development and growth.

**Limitations and Recommendation for Future Researches:**

The current study has been defined in some respects, so it is suggested that work be done to complete the scientific application in this field with future studies for applicants for graduate studies programs in Iraq universities, here are some suggested topics related to the current study topics:

**Longitudinal Studies:** Conduct longitudinal studies to track changes in the utilization of Information Technology (ICT) and its impact on Human Resource Development (HRD) over an extended period. This would provide a more

comprehensive understanding of how these variables evolve and their long-term effects.

**Cross-Industry Comparisons:** Explore the differences in ICT adoption and its impact on HRD across various industries or sectors. Investigate how specific industry dynamics and requirements influence the relationship between technology and HRD.

**Qualitative Research:** Complement quantitative research with qualitative studies to gain deeper insights into the attitudes, perceptions, and experiences of employees and HR professionals regarding ICT and HRD. Qualitative data can provide richer context and help uncover nuances not captured by quantitative measures.

**Case Studies:** Conduct in-depth case studies within organizations known for their successful integration of ICT in HRD. Analyze best practices, challenges, and the strategies employed to achieve positive outcomes. These case studies could serve as models for other organizations.

**Benchmarking:** Compare the findings of this study with similar research conducted in different regions or countries to identify global trends and regional variations in the relationship between ICT and HRD.

**Experimental Research:** Consider experimental research designs to test specific interventions or strategies aimed at optimizing the use of ICT for HRD. Randomized controlled trials or quasi-experimental designs can provide more causal insights.

**Impact on Organizational Performance:** Investigate the link between ICT-enabled HRD and overall organizational performance metrics, such as productivity, employee satisfaction, and financial performance. Understanding how HRD influences these outcomes can offer valuable insights.

**Change Management Strategies:** Examine the role of change management strategies in facilitating the successful implementation of ICT in HRD. Identify effective change management practices that can help organizations overcome resistance and adapt to technological changes.

**Global Trends in HR Tech:** Stay updated with emerging technologies and trends in HR technology. Future studies should explore the integration of advanced technologies like artificial intelligence, machine learning, and virtual reality in HRD.

By pursuing these research directions, scholars and practitioners can further advance our understanding of the complex relationship between ICT and HRD, ultimately leading to more informed decision-making and enhanced HR practices in organizations.

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