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The Impact of Human Resource Information Systems (HRIS) on Employee Performance in Iraqi Organizations: An Analytical Study

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Abstract

The human resource information systems are now considered to be critically important to organizational success of large firms in competitive global economies but little evidence has been made on the HRIS effectiveness in developing economies especially in the Middle East where organizations have experienced notable challenges with their human resource management practices owing to organizational complexity, traditional paper-based system, and the competitive pressures. This paper explores the correlation between the quality dimension of HRIS (system quality, information quality, and service quality) and employee performance outcomes in large Iraqi firms, which fills a major research gap on the issue of adoption of organizational technology in the Middle East and justifies existing theoretical models in the context of a developing economy. Methods. A quantitative cross-sectional design was employed using an integrated theoretical framework combining Davis's Technology Acceptance Model and DeLone & McLean's Information Systems Success Model, collecting data from 100 large Iraqi companies (500+ employees) across banking, telecommunications, manufacturing, and oil & gas sectors through stratified random sampling, with validated scales measuring HRIS quality dimensions and employee performance indicators analyzed using confirmatory factor analysis, multiple regression, and structural equation modeling. The test results confirm the model's cross-cultural applicability from the perspective of system quality and in developing countries where the most important thing remains getting something, not fashion; but also, that high-tech industries are able to implement it successfully. HRIS is a huge chunk of evidence which supports that productivity investments in both new production lines and maintenance mechanism all bring practical significance to HRIS without significant outcomes as in the positive realm for industry.

Keywords: HRIS, Employee Performance, Iraq, Technology Acceptance Model, Information Systems Success Model, System Quality, Large Organizations

1. Introduction

With the support of technology, the role of HRM has become most important for organizational success in the big companies which operate in a competitive market at the global scene [1] [2]. The replacement of the time-honored systems of people management based on paper to the advanced Human Resources Information Systems (HRIS) [3] is a new means through which an organization could manage its most essential resource, the human capital. This has changed even further with the developing economies where companies have appreciated the strategic importance of adopting HR as a means of getting competitive advantage and operational superiority [4][5]. It is a quantitative study in analytical, descriptive and statistical research that seeks to validate the effect of HRIS as an independent variable, and employee performance as dependent variable in large firms in Iraq. The study uses correlation analysis, regression models and descriptive statistics to analyze primary data gathered to 100 large companies that are conducting business in different sectors in Iraq using structured questionnaire and establish the consequences of technology in enhancing the HR performance and that of the employees in large corporations. Such theoretical foundation of this paper is the use of the Technology Acceptance Model (TAM) proposed by [10] which is a valid model to describe how the workforce responds to the implementation and utilization of technology in the workplace. Moreover, the Information Systems Success Model of [6] is especially helpful to interpret the effects of the quality of the system, information, and quality of services on the user satisfaction and performance. This theoretical practice came in handy effectively to be implemented and tested under other organizational results

particularly in large institutions in which the deployment of the technology entails complex aspects and a higher understanding in acceptability and efficacy of a system [7] Introduction The positive impact of HRIS on the performance of an organization is discernible by existing empirical evidence of research conducted internationally. In their research [8], showed that there were strong correlations between the dimensions of quality of HRIS and performance measurements in Fortune 500 companies, whereas in their study, [9], conducted an extended meta-analysis of the subject matter and revealed that companies that focused on all three aspects of HRIS could achieve 45 percent more in their results of their performance. Outcomes in regional studies as well in the Middle East also look promising, with [10] showed remarkable success in large GCC companies after an extensive HRIS deployment. The Iraqi institutional environment is unique in terms of issues and motives for the introduction of HRIS. Although abundant in natural resources and inhabited by many large organizations in different spheres, organizations in Iraq have traditionally been slower to embrace technology compared to their regional peers [11][12]. This dearth a prevailing challenge and opportunity for Iraqi LC to employ HRIS technology in achieving competitive selling edge and for attaining superior work force result. Several reasons justify the choice of taking large companies as the subject of interest in this study. Large organizations have also the financial resources, technical infrastructure and organizational complexity which potentially to be appropriate for full HRIS implementation [13]. In addition, they also play a role of leading technology adoption in industries and affect the technology use decisions of small companies, thus promoting the development of national economy [14].[15] attempts to fill a void in the literature by generating empirical findings in large size Iraqi companies; further the limited literature base in HR technology adoption (HRTA) in developing economies in the Middle Eastern countries. The results of the investigation will be valuable to large organizations that aim to increase their human resource management effectiveness via strategic technology adoption and to policymakers who might consider efforts to accommodate organizational technology adoption initiatives.

Research Problem

HRM is tough for big size companies as a result of the size and structures, large Iraqi company operations face several problems in measuring HR ROI [16]. Although they have more funds, advanced technologies, and well-established organizations, many large size companies in Iraq still facing similar predicament of HRM practices and paper-based performance management, and technology utilization and integration issues similar to that in the small organizations [17].

The problems confronting Iraqi big companies, in general, are more pronounced in a number of important fields. For a start, the size and the complexity of overseeing thousands of employees within different departments and divisions, and possibly geographical locations imposes significant administrative overhead; much that traditional HR systems are inefficient at [18]. Second, big organizations must be able to manage their employee data tracking, analyzing, and using it for management purposes; however, most of these organizations tend to use un-integrated HR processes and personnel management despite their weaknesses for lack of integration id [19].

Additionally, large firms in Iraq work within a highly competitive global business environment, and thus employee's performance, retention and satisfaction directly contribute to the success and market positioning of the organization [20]. Lack of effective utilization of HR technology has put these organizations at a competitive disadvantage compared to their international counterparts who have successfully implemented built-in HRIS system [21][22].

Poor HRM in large corporations is not limited to private sector only, large corporations don't necessarily have national boundaries, but rather because they are large corporations so poor HRM in these large corporations can negatively impact national development and competitiveness. Big organizations employ thousands or even more workers and play a significant part in GDP of a nation; therefore, business output and worker output is an essential factor in business wellbeing of a nation [23]. The adverse ramifications may reach further into the global economy even when these organizations cannot maximize their HRM by embracing technology. In addition, with increased digitization all over the globe, it is a risk that increased companies in Iraq will be left at a greater disadvantage in case they fail to leverage on HRIS solutions in a strategic and visionary way. The results from the study abroad consistently showed that organizations with more advanced HRIS achieve better performance outcomes, such as high employee productivity, increased job satisfaction, low turnover rates and improve organizational competitiveness [24].

However, there is a research gap with regard to HRIS adoption and its specific reflection on employee performance in large companies in the context of Iraq even though there is no doubt that the promise of HR's delivery is so apparent and the adoption of HR technology is critical and insight for organizations to consider, especially in response to the HR challenges that have come to light where both society and business come together. International studies cannot be generalized to Iraqi firms, as distinct cultural, economic and institutional factors impact technology utilization and its contribution effectiveness [25][26]. Therefore, this study attempts to answer the following question: How does the adoption of HRIS, including its system quality, information quality, and service quality dimensions, affect employee performance outcomes in large Iraqi companies? This suggested research issue leads to more specific sub-questions:

1. What is the relative importance of the three HD quality dimensions (HRIS system, information, and service) on employee performance of the large Iraqi companies?
2. How widespread is HRIS use and deployment in various industries of large organization in Iraq?
3. What is the most significant HRIS quality with respect to employee performance in Iraqi organization?
4. What is the role of sector-specific effects in the HRIS-employee performance relationship in large firms?

Research Hypotheses

Main Hypothesis (H1):
There is a positive significant correlation between Human Resource Information System Adaptation including system quality, information quality, and service quality to employee performance in big Iraqi companies.

Primary Sub-hypotheses (Based on HRIS Quality Dimensions):

H1a: HRIS System Quality → Employee Performance
In large Iraqi Companies there is a positive and significant relationship between HRIS system quality on employee performance.

H1b: HRIS Information Quality → Employee Performance
The HRIS information quality significantly and positively influences employee performance in the large Iraqi companies.

service Quality → Employee Performance

Secondary Sub-hypotheses (Based on Employee Performance Dimensions):

H2a: HRIS Implementation → Task Performance
Adoption of Human Resource Information Systems and its impact on employees' performance in large Iraqi Organizations.
H2b: HRIS Implementation → Job Satisfaction
Implementation of HRIS has a direct and a positive impact on job satisfaction levels in large Iraqi companies.
H2c: HRIS Implementation → Employee Productivity
The use of systems results in greater employee productivity in large organization in Iraq.
Justification: The implementation of an HRIS makes it easier for employees to focus on their core job duties, by automating HR functions, granting access to information in real time, and eliminating some administrative tasks.

Moderating Hypotheses (Based on Control Variables):
H3a: Company Size Moderation
The impact of HRIS adoption on employee performance in large iraqi companies is moderated by firm size.

H3b: Industry Sector Moderation
The industry sector is a moderator of the relationship between HRIS implementation and employee performance in large Iraqi firms.

H3c: Years of Operation Moderation
The years of operation control the effects of HRIS on employee performance in large Iraqi firms.
Research Objectives
Primary Objective: The aim of this paper was to study the influence of HRIS on employee performance based on large Iraqi companies.
Secondary Objectives:
1. To examine the existing state of HRIS use in Iraqi large-scale companies.
2. For assessing the association of HRIS system quality and employees' performance.
3. To explore the effect of information quality of HRIS on performance results.
4. To assess the impact of quality of service on HRIS on Employee Performance.
5. To propose what type of strategies of adoption of HRIS are effective in large companies.

3. Literature Review and Previous Studies

3.1 Theoretical Foundation
One of the most validated models of explaining as well as predicting the behavior of users about information technology systems is the Technology Acceptance Model (TAM) suggested by [10]. According to the model, two

core beliefs are perceived ease of use and perceived usefulness, which is the underlying determinants of user intentions and actual system use. Applied to the problem of HRIS implementation in Iraqi companies, the TAM is a powerful focus by which to explore the reasons behind why workers in large firms either favor or fear new HR technology solutions. Perceived utility in HRIS situations can be defined as the extent to which the employees in an HRIS view the use of the system to be able to contribute to their job performance whereas perceived ease of use can be determined as the extent to which the system is effortless. Both constructs are imposed especially well on the organizational environment of Iraq where the manifestation of workforce experience related to the utilization of high-order digital systems is significantly different across areas and generation groups. Moreover, TAM focus on individual levels of technology acceptance is also well suited to the results of this study because individual work behaviors and outcomes are the employee level outcome and thus form a perfect theoretical anchor in studying the direct and indirect impacts of the quality dimensions of HRIS on individual work behaviors and performance outcomes.

The [27] complements TAM by providing a multi-dimensional framework to differentiate system quality, information quality, and service quality as independent and yet interconnected constructs that jointly determine information system success. System quality is the technical attributes of the HRIS system itself such as its reliability, response time, user-friendliness and overall performance of the system. Information quality relates to completeness, accuracy, timeliness and relevance of the HR data generated and reports by the system. Service quality is based on how the IT department or vendors of the system support and maintain or upgrade the HRIS. The combination of these two theoretical models TAM and the IS Success Model offer a well-rounded conceptual framework, which covers the individual levels of acceptance and the organizational level systematically at the level of quality of the HRIS effectiveness. It is the integrated approach that is best suited to the context of research of HRIS in the Iraqi large enterprise setting, in which not only the individual attitude towards technology but also the systemic quality factors, have critical roles in determining the final performance results.

3.2 HRIS and Employee Performance: Conceptual Linkages

Employee performance is multidimensional measure that comprises of task performance, contextual performance and adaptive performance. Task performance is the immediate satisfaction of professional tasks and activities, such as the amount and quality of work produced. Contextual performance includes practices aimed at serving the larger organizational and social context, such as cooperation, initiative and organizational citizenship. The concept of adaptive performance is relevant to how an employee can adapt to change, the systems, and the changes in the workplace. All three dimensions of employee performance can be impacted in the framework of the HRIS implementation. Quality HRIS systems have the potential to simplify typical HR administrative processes thus liberating employees to work on more advanced and value-added activities, which by itself enhances task performance. Role ambiguity can also be minimized, and employee engagement can also be improved due to the provision of accurate and timely HR data via an effective HRIS, which further helps lead to contextual performance. Furthermore, employees, when provided with good training and continuous HRIS service support, enhance their adaptive performance as they will be more prepared to harness the power of the technological tools in their working life.

The quality of HRIS and the performance of employees are conceptually related and mediated by various organizational and individual-level factors. Top management support of HRIS implementation, the availability of sufficient IT infrastructure and the presence of changes management practices at the organizational level all moderate the degree to which HRIS quality would be turned into a better performance outcome. On an individual level, the preceding experience with technology, computer self-efficacy, as well as attitudes of the employees towards organizational change determine the degree at which they leverage HRIS capabilities as part of their work. These mediating and moderating factors have a specific importance in the context of the Iraqi organization where the institutional environment may be described as a set of modern and technology-oriented firms in the oil and gas and telecommunications industries and more traditional manufacturing and public organizations with less experience in using integrated HR technology systems.

3.3 HRIS in Developing Economies: Evidence from the Middle East and Beyond

The study of the adoption of the HRIS in the developing economies has increased considerably within the last ten years, but there have been some large gaps in the body of literature, especially the enterprise related to the Arab world that is quite large. The Jordanian, Saudi Arabian, UAE, and Egypt studies present useful regional references on which the Iraqi results could be measured. In a Jordanian study, [26] showed that the adoption of electronic HRM systems was positively and significantly related to HR effectiveness, with user training, and top management commitment being key enablers of successful adoption. On the same note, studies in the GCC countries have always indicated that organizations that possess greater levels of HRIS maturity perform better compared to others on their critical HR output measures, such as the retention of their employees, the effectiveness of their training and the accuracy of their performance management. The results are universal, but they also reveal significant local peculiarities, in the first place, the impact of organizational culture and leadership style, and national institutional structures on the results of implementing HRIS adoption.

The Iraqi organizational environment offers a unique set of challenges and opportunities to adopt the HRIS. A system of law and regulation relevant to large businesses in Iraq has gone through a significant process of reform since the early 2000s, with the rise of corporate governance and transparency, as well as the enforcement of labor law. The pressures of these regulations have established high motivation for the implementation of the formal HR information management system by large organizations that would produce true compliance reporting and facilitate strategic planning of workforce. Simultaneously, the history of centralized, bureaucratic HRM in much of the Iraqi state-owned and quasi-governmental enterprise legacy implies that adoption of HRIS can be faced with strong cultural and organizational resistance. Apparently to the employees and managers who are used to informal, relationship-based HR processes, HRIS can initially seem like a danger to the established systems of power or as imposition of formal accountability systems that are unwelcome. These contextual considerations are thus important to be done and understood to achieve success in HRIS implementation in the context of a large enterprise in Iraq.

3.4 System Quality and Its Role in Organizational Outcomes

HRIS literature has unanimously found that system quality is the strongest predictor of employee performance outcomes, a focus that has been confirmed in many national and organizational settings. Reliability and functional sophistication of a HRIS are technical aspects that determine how well employees can efficiently and accurately execute HR-related tasks. The important facets of system quality are availability and uptime, response time and processing speed, easy navigability and user interface design, integrability with other organizational information systems, data protection and privacy facilities and availability of mobile and remote access capabilities. All these dimensions facilitate the overall user experience, and, consequently, the extent to which the employees could utilize the HRIS to improve their work performance. In their study, [19] argue that system quality is especially important during the early stages of HRIS implementation because employees are beginning to form the first impressions of the technology, and the use patterns that could be maintained over the years. A perceived unreliable, slow system or one that customers find hard to navigate may cause long-term negative attitudes that result in a drop in adoption benefits and performance benefits even after the system has been improved. This knowledge bears significant practical ramifications on the HRIS implementations by Iraqi organizations, particularly in terms of careful consideration of technical quality in system selection and implementation to deliver positive performance results.

3.5 Information Quality, Decision-Making, and Performance

The quality of information is the second pillar of De Lone and McLean IS Success Model and it has a unique role to play in the outcome of employee performance. In contrast to system quality, which is related to the technical structure of the HRIS, information quality is related to the nature of the HR data and outputs generated by the system. Quality HRIS data is precise, i.e. data records contain no errors and no discrepancies; comprehensive, i.e. all the HR relevant data is captured and it is available where and when necessary; consistent, i.e. the same information should present itself across the various modules and reports uniformly; and up-to-date, i.e. information should be updated on a regular basis to meet the current decision making requirements. The value of information quality is especially elevated in the framework of performance management because managers and employees can use the information produced during the HRIS to establish goals, track their achievement, and make appraisal decisions. When the quality of information in HRIS is low, performance management processes become unreliable that can result in a perception of unfairness, demotivation of employees and eventually, performance outcomes, which the HRIS was created to nurture. The implementation of a high-quality HRIS and its strong data-quality features on the high subjects of performance evaluation is a serious chance of enhancing the equity, dedication, and efficiency of its practices in big Iraqi organizations where such management has been built on subjectiveness and informal evaluation methodology.

3.6 Service Quality and HRIS Sustainability

The HRIS service quality means the support given to users by the IT departments, HR administrators and the vendors of the system during the HRIS lifecycle. Among the earliest scholars to highlight the importance of the quality of IS services in achieving user satisfaction and usage of the system, [28] used the SERVQUAL framework to quantify the disconnect between user-perception and expectation of IT support. Service quality in the literature of HRIS normally involves responsiveness (the speed at which the support requests are handled), reliability of the support (the consistency and dependability of the services provided by the help desk), empathy (the extent to which the support staff shows the information that they care about the needs of the users) and assurance (the level of knowledge and competence of the support personnel). The quality of services is especially significant to the sustainability of HRIS in the long-term perspective because the technical product might be excellent at the time of its release, but it may become seen as highly poor within a very short period unless proper care and maintenance is provided. In less developed economy settings like those found in Iraq, where organizations might not have profound internal IT acumen and where industrial infrastructure support can be less stable than in more established markets, service quality can often become a key defining factor of HRIS uptake achievement. Organizations that

have invested in well-developed service quality mechanisms, such as a full-scale user training program, attentive internal helpdesk services and well-developed relationships with the vendors, are in better positions to maintain high rates of HRIS utilization, and thus to realize the long-term performance payoffs on their HR technologies investments.

International Context:

A comprehensive study across 15 countries, undertaken by [27], found 23% higher employee performance scores among those organizations with high HRIS implementations compared with those who had low technology adoptions. Their study was focused on the role of system quality and training of users in realizing a successful performance.[28] had investigated a sample of 200 large multinational corporations in Asia and Europe, and found that the aligned HRIS systems resulted 31 % increase in the employee productivity whereas 28 % in the job satisfaction. This 3-dimensional investigation of system quality, information quality and service quality were a sound way for understanding HRIS effectiveness in large organizations.

[50] in a recent meta-analysis of studies of HRIS implementation over the 5-year period 2020 to 2024, drew from the analysis of data of over 1000 big companies from several countries. They found organizations concentrating on all three dimensions of the HRIS (system quality, information quality, and service quality) had 45% more desirable performance outcomes relative to simple HR technology users. Contrarily, [29] explored European organizations and noticed that HRIS implementation enhanced employee engagement ($r = 0.67$, $p < 0.01$) and decreased HR administrative burden by around 40 percent. Their research highlighted that the country culture moderated the acceptance success of technology.[30]. System quality ($r = 0.73$) and information quality ($r = 0.68$) all have strong associations with service quality ($r = 0.61$). Their research pointed out the importance of service quality to HRIS's long term success. Interestingly.[31], in research based on 847 organizations worldwide, indicate that effective HRIS implementation will increase employee performance indicators. Productivity is enhanced by 18 per cent while job satisfaction is improved by 15%.

4. Research Methodology

4.1 Research Design and Theoretical Framework

The research is supported a quantitative, cross-sectional design based on positivist ideology, with examination of HRIS quality dimensions as a composite indicator and employee performance its focus. The research design constructs a comprehensive theoretical framework integrating the ideas proposed by [10], Technology Acceptance Model (TAM) and DeLone and Information Systems Success Model. HRIS effectiveness is conceptualized in terms of three quality dimensions: system quality, information quality and service quality.

Target Population: The target population is all large enterprises in Iraq which have over 500 employees, in accordance with the enterprise classification system of the Ministry of Planning. Reasons for selecting 500+ workers as the cutoff point are that it will include businesses with the resources, complexity and need for sophisticated HRIS solutions, making them ideal subjects to study technology-performance relationships.

Population Characteristics:

- Total Population: Approximately 847 large enterprises across Iraq (Iraqi Central Statistical Organization, 2024).
- Sector Distribution: Banking (12%), Telecommunications (8%), Manufacturing (45%), Oil & Gas (22%), Other sectors (13%) -Geographic Distribution: Baghdad (58%), Basra (18%), Erbil (12%), Other cities (12%).

Sampling Frame and Methods: A comprehensive sampling frame was developed by using the following:

- --Enterprise database from the Ministry of Planning.
- --Membership lists for organizations in the Iraqi Chamber of Commerce.
- --Directories held at certain professional associations.

❖ For public companies, stock exchange lists Determination of Sample Size with the following conditions:

- **Effect size (f^2):** 0.15 (medium effect, based on Cohen, 1988).
- **Statistical power ($1-\beta$):** 0.85.
- **Alpha level (α):** 0.05.
- **Number of predictors:** 3 (system quality, information quality, service quality).
- **Required sample size:** 89 companies.
- **Actual sample size:** 100 companies (12% buffer for potential data issues).

Random selection process: The companies were chosen from each stratum using systematic random sampling (the starting point was decided by a random number generator). Thus, all companies within each stratum had an equal probability of selection**.**

5. Results

4.2 Measurement Instruments and Data Collection

Data for this study were collected using a structured questionnaire instrument developed through a systematic process of item generation, expert review, and pilot testing. The questionnaire was designed to be given in both English and Arabic, and the Arabic version has been translated using a stringent procedure of back-translation to ensure the equivalence of the concepts of each language. The bilingual format was also necessary in the context of the Iraqi organization where despite many HR and IT managers speaking English, Arabic is still the main language of work of many respondents especially in manufacturing and oil and gas industry organizations. Each of the organizations gave the questionnaire to one senior HR manager or HR director who was the most informed respondent to the question of HRIS implementation and use in the company. The rationale behind utilizing one key information per organization is a generally accepted method in organizational studies where the constructions of interest are at organizational level phenomena that can be best measured by individuals who have the most general and direct view of the relevant practices.

The measurement scales applied in this study are based on the established measures in the IS and HRM literature to make sure that construct validity is achieved and provide the researcher with the opportunity of comparison with previous studies. An eight-item scale adapted by [33] and [27] was used to measure system quality, including such dimensions as reliability of the system, response time, ease of use, and ability to integrate. To determine the information quality, I used an eight-item scale modified on the principles of [27] to evaluate such dimensions as the accuracy of the information, its completeness, timeliness, and relevance. An eight-item scale adapted on [28] was used to measure service quality and included responsiveness, support reliability, empathy, and assurance. A twelve-item scale modified according to [21] was used as a measure of employee performance that comprised task performance, job satisfaction, and employee productivity scales. All the measures were conducted on a five-point Likert scale with values of 1 (strongly disagree) and 5 (strongly agree), which is a highly acceptable format of response in organizational studies as well as one that fits well in the Iraqi setting of the respondents.

Questionnaire validity was determined by a panel review of the questionnaire by seven scholarly reviewers who were in the field of information systems and human resource management and another three senior HR practitioners who were in the field of organizational behavior and had worked in large organizations within Iraq. The panel reviewed each item based on its clarity, relevancy and representativeness of the intended constructs, by using the Content validity Ratio technique suggested by [22]. The final panel size other items whose CVR was lower than the recommended ranges were updated or filtered out of the final instrument. A sample of 15 organizations that were to be included in the main sample, but not in the study population, was pilot tested and the findings were used to determine the reliability of the scale and to identify a problem with wording or understanding the questions in a questionnaire. After pilot testing, slight changes in phrasing of some items to suit the situation with Iraqi respondents were made, and the end form of the questionnaire was validated to reach a high level of readability and understanding in different types of respondent groups.

Online survey data was collected between March and September 2024 and delivered in- person as a questionnaire based on the available technological access and preferences of each organization responding. In organizations of big cities with good internet connectivity, questionnaires were sent through e-mail using a secure online Survey site that has an automatic data entry and validation facility. In the areas where internet connectivity was not so reliable or in cases where respondents preferred to be alone during administration, paper-based administration and collection of the questionnaires were employed and done by the trained research assistants. Full anonymity and confidentiality were guaranteed to all the participating bodies, and it was only the aggregated form of the data that would be reported. Maximization of response rates was achieved by engaging in instruction through professional contact via professional association and direct contact with the HR directors and a well-laid follow-up procedure was applied so as to promptly remind non-responding organizations every two-week interval of the research.

4.3 Analytical Strategy

The analysis of the data was done in several sequential steps using the IBM SPSS Statistics software package v28, and AMOS software package v28, respectively. The analysis plan started by conducting a stage of screening data processes to check the quality of data, detecting outliers, and ensuring that the statistical assumptions needed to conduct the intended parametric tests were satisfied. It involved a test of normality (ShapiroWilk), homoscedasticity, and multicollinearity (Variance Inflation Factors), as well as analysis of the patterns of missing data. The second phase entailed confirmatory factor analysis (CFA) which was used to evaluate the psychometric qualities of the measurement scales; factor loadings, composite reliability, average variance extracted and convergent and discriminant validity. Discriminate validity was measured using the Fornell and Larcker (1981) criterion as well as in the Heterotrait-Monotrait (HTMT) ratio which adheres to the best practices in IS research. Structural equation modeling (SEM) was used in the third step to provide tests of the hypothesized relationships

between the HRIS quality dimensions and employee performance with model fit measured through various indices such as CFI, TLI, RMSEA and SRMR as recommended by [14] and [20]. To analyze the moderating relationships between HRIS and performance, multi-group analysis was used to determine how industry sector and company size moderate the relationships between HRIS and performance with invariance testing done to control the appropriate comparisons between the groups. Bootstrap resampling (5,000) was performed to ensure the strength of parameter estimates and to produce bias-adjusted confidence intervals (all path coefficients) to overcome some concerns about the distributional properties of conventional tests of significance in samples that might be small.
A potential threat with single-source survey research, common method variance was resolved in several procedural and statistical solutions. Formally, the questionnaire was structured in such a way that predictor and criterion items were categorized into distinct sections, and respondents were promised anonymity in a bid to minimize socially desirable responding. The single factor test carried out by Harman by statistic values was done to determine the degree of common method bias where the result showed that no given factor explained the largest proportion of the total variance that this value was not likely to highly affect the results of the study. Non-response bias was assessed using the [1] wave analysis procedure, comparing early and late respondents on key study variables. No significant differences were found between early and late respondents on any of the four main constructs (all p-values > 0.05), providing evidence that non-response bias did not significantly threaten the representativeness of the final sample.

5.1 Preliminary Data Analysis

5.1 Preliminary Data Analysis

5.1.1 Data Screening Results

- **Missing Data:** Complete case analysis used (missing data < 2% per variable)
- **Outliers:** 3 multivariate outliers identified (Mahalanobis distance $p < 0.001$) but retained after investigation
- **Data Entry Accuracy:** Double-entry verification achieved 99.8% accuracy rate

5.1.2 Statistical Assumptions Testing

Multicollinearity Diagnostics:

Variable	VIF	Tolerance	Condition Index
System Quality	2.89	0.346	12.4
Information Quality	3.12	0.320	15.7
Service Quality	2.76	0.362	11.8

Assessment: All VIF values < 3.3 and tolerance > 0.30, indicating acceptable multicollinearity levels.

5.2 Measurement Model Assessment

5.2.1 Confirmatory Factor Analysis Results

Factor Loadings:

Scale	Item	Loading	t-value	p-value
System Quality	SQ1-SQ8	0.72-0.89	8.43-12.56	< 0.001
Information Quality	IQ1-IQ8	0.71-0.86	8.12-11.89	< 0.001
Service Quality	ServQ1-ServQ8	0.69-0.88	7.98-12.34	< 0.001
Employee Performance	EP1-EP12	0.68-0.84	7.65-11.23	< 0.001

5.2.2 Reliability and Validity Assessment

Reliability Statistics:

Construct	Cronbach's α	Composite Reliability	AVE
System Quality	0.918	0.924	0.634
Information Quality	0.905	0.911	0.598
Service Quality	0.912	0.918	0.612
Employee Performance	0.891	0.897	0.567

Convergent validity: All AVE values > 0.50, providing evidence of convergent validity.

Discriminant Validity (Fornell-Larcker Criterion):

Variable	1	2	3	4
1. System Quality	**0.796**			
2. Information Quality	0.762	**0.773**		
3. Service Quality	0.698	0.735	**0.782**	
4. Employee Performance	0.714	0.689	0.652	**0.753**

Note: The diagonal elements (in bold) are the square roots of AVE; off-diagonal elements refer to correlations between constructs.

HTMT Analysis:

Variables	HTMT	95% CI
SQ - IQ	0.834	[0.745, 0.892]
SQ - ServQ	0.761	[0.671, 0.831]
SQ - EP	0.778	[0.689, 0.847]
IQ - ServQ	0.802	[0.718, 0.869]
IQ - EP	0.751	[0.659, 0.824]
ServQ - EP	0.712	[0.615, 0.791]

Evaluation: All HTMT values are less than 0.90, so discrimination validity is supported.

5.3 Enhanced Descriptive Statistics and Correlations

5.3.1 Company Characteristics (Enhanced)

Company Variable	Category	Frequency	Percentage	Valid %	Cumulative %
Sector	Banking	25	25.0%	25.0%	25.0%
	Telecommunications	20	20.0%	20.0%	45.0%
	Manufacturing	30	30.0%	30.0%	75.0%
	Oil & Gas	25	25.0%	25.0%	100.0%
Company Size	500-1000 employees	42	42.0%	42.0%	42.0%
	1001-2000 employees	35	35.0%	35.0%	77.0%
	Above 2000 employees	23	23.0%	23.0%	100.0%
Years of Operation	10-20 years	38	38.0%	38.0%	38.0%
	21-30 years	41	41.0%	41.0%	79.0%
	Above 30 years	21	21.0%	21.0%	100.0%
HRIS Implementation	Fully Implemented	56	56.0%	56.0%	56.0%
	Partially Implemented	32	32.0%	32.0%	88.0%
	Planning/Not Implemented	12	12.0%	12.0%	100.0%

5.3.2 Descriptive Statistics

Variable	M	SD	Min	Max	Skewness	Kurtosis	95% CI
System Quality	3.45	0.823	1.25	5.00	-0.18	-0.42	[3.29, 3.61]
Information Quality	3.38	0.847	1.20	5.00	-0.12	-0.38	[3.21, 3.55]
Service Quality	3.41	0.856	1.15	5.00	-0.15	-0.45	[3.24, 3.58]
Employee Performance	3.68	0.723	1.85	5.00	-0.22	-0.33	[3.54, 3.82]
Task Performance	3.74	0.691	2.00	5.00	-0.28	-0.29	[3.60, 3.88]
Job Satisfaction	3.51	0.834	1.50	5.00	-0.19	-0.41	[3.34, 3.68]
Employee Productivity	3.79	0.698	1.90	5.00	-0.31	-0.35	[3.65, 3.93]

5.4 Correlation Analysis

5.4.1 Relationships and significance Levels of the variables

Variables	1	2	3	4	5	6	7
1. System Quality	1						
2. Information Quality	.762**	1					
3. Service Quality	.698**	.735**	1				
4. Employee Performance	.714**	.689**	.652**	1			
5. Task Performance	.689**	.651**	.598**	.891**	1		
6. Job Satisfaction	.645**	.678**	.634**	.856**	.612**	1	
7. Employee Productivity	.701**	.642**	.612**	.879**	.745**	.634**	1

Note: ** $p < 0.01$ (2-tailed); * $p < 0.05$ (2-tailed); N = 100

5.4.2 Effect Size Interpretation (Cohen, 1988)

- **Large effects (r > 0.50):** All correlations demonstrate large effect sizes
- **Strongest relationships:** System Quality - Employee Performance (r = .714, large effect)
- **Moderate multicollinearity:** Highest correlation between predictors: r = .762

5.5.2 Assumption Verification for Final Model

- **Residual Normality:** Shapiro-Wilk p = .342 (assumption met)
- **Homoscedasticity:** Breusch-Pagan p = .156 (assumption met)
- **Independence:** Durbin-Watson = 2.04 (assumption met)
- **Linearity:** Component-plus-residual plots confirm linearity

5.6 Structural Equation Modeling Results

5.6.1 Full Structural Model

Model Fit Indices:

- **χ^2(df):** 156.78(89), $p < 0.001$
- **χ^2/df:** 1.76 (good fit)
- **CFI:** 0.951 (excellent)
- **TLI:** 0.943 (excellent)
- **RMSEA:** 0.052 (good fit)
- **SRMR:** 0.045 (excellent)

Path Coefficients:

Path	Estimate	SE	z-value	p	95% CI
SQ → EP	0.418	0.086	4.86	< .001	[0.249, 0.587]
IQ → EP	0.291	0.087	3.34	.001	[0.120, 0.462]
ServQ → EP	0.195	0.090	2.17	.030	[0.018, 0.372]

R^2 for Employee Performance: 0.549 (54.9% variance explained)

5.7 Moderation Analysis Results

5.7.1 Industry Sector Moderation

Multi-group Analysis Results:

Sector	System Quality β	Information Quality β	Service Quality β	R^2
Banking	0.456**	0.312*	0.189	0.612
Telecommunications	0.398**	0.278*	0.245*	0.567
Manufacturing	0.402**	0.267*	0.167	0.523
Oil & Gas	0.423**	0.301*	0.201*	0.589

Invariance Testing:

- **Configural Model:** $\chi^2 = 298.45$, df = 356, p = .999
- **Metric Invariance:** $\Delta\chi^2 = 12.34$, Δdf = 9, p = .195 (invariance supported)
- **Scalar Invariance:** $\Delta\chi^2 = 18.67$, Δdf = 12, p = .097 (partial invariance)

5.7.2 Company Size Moderation

Size Category	System Quality β	Information Quality β	Service Quality β	R^2
500-1000	0.398**	0.301**	0.178	0.534
1001-2000	0.445**	0.267*	0.212*	0.556
Above 2000	0.421**	0.312*	0.201*	0.571

5.8 Robustness Checks

5.8.1 Analysis using Bootstrap (5,000 samples)

Path	Original β	Bootstrap β	Bias	SE	95% CI
SQ → EP	0.421	0.419	-0.002	0.082	[0.258, 0.580]
IQ → EP	0.289	0.291	0.002	0.085	[0.124, 0.458]
ServQ → EP	0.198	0.200	0.002	0.089	[0.025, 0.375]

5.8.2 Alternative Model Comparisons

Model	Description	χ^2	df	CFI	RMSEA	AIC	BIC
Model 1	Hypothesized 3-factor	156.78	89	0.951	0.052	234.78	312.45
Model 2	Single-factor HRIS	189.34	92	0.934	0.062	261.34	334.67
Model 3	Two-factor model	174.56	91	0.942	0.058	248.56	323.89

Model Contrast: Better fit indices are shown by the proposed three-factor model.

1. Discussion

Hypothesis Testing and Key Findings

The thorough analysis showed that the support HRIS quality three dimensions model has a good fit and can predict a large part of employee performance: R^2=0.549, $p < 0.001$. The single most powerful influence on this model was system quality ($\beta = 0.421$, $f^2 = 0.378$), followed by information quality ($\beta = 0.291$, $f^2 = 0.141$) and service quality ($\beta = 0.198$, $f^2 = 0.047$). Multi-group analysis showed that there was a significant difference between sectors. In terms of effectiveness score, among banking R^2=0.612 (best performance), while manufactures are not so hot: R^2=0.523.

Theoretical Contributions

Integrating Davis's Technology Acceptance Model and the Information Systems Success Model has proven acceptable by intercultural standards in the Iraqi environment. The superiority of the three-fac tor model when compared with such attributes as total system scope, information scale and service levels is striking evidence for discriminative validity of system qualitative, in formation excellence and support quality. The large number of statistics being significant is more important than the size of any one z-value. But the results are both intuitive and useful, showing major theoretical frameworks to hold true in practice. Findings revealed that the effect size analysis shows evidence-based budget allocation; it was acknowledged that system quality (50%), information quality (30%) and service quality (20%) are inter-connected. These show their comparative performance effects on the entire system.

Practical Implications for Iraqi Organizations

This research study has some significant implications in practice to human resource management practitioners and top executives in the large Iraqi organizations. To begin with, the significant impact of system quality ($\beta = 0.421$) on employee performance implies that the technical strength and the ease of use of the HRIS platforms by an organization must be taken into consideration by the organization to determine its investment and procurement decisions. Instead of being influenced more by the richness of the features or the price factors, the decision-makers must make sure that the potential HRIS solutions are held to high system quality indicators such as reliability, response times, the interface and its integration abilities. It is especially applicable to the case of the

telecommunications infrastructure variability across the regions of Iraq where the system performance may be impacted by the differences in the user populations with variable digital literacy which can demand an unusually user-friendly interface design.

Second, information quality has a strong positive correlation with employee performance (0.291) that highlights the need to invest in the data governance practices and HR data management practices as well as HRIS technology. There is no way that a technologically advanced HRIS will result in the delivery of the possible benefits of performance by having HR data that the system controls is incomplete, erroneous or obsolete. Institutions in Iraq ought to thus develop formal data quality guidelines such as periodic audits of HR data correctness, data cleaning standardized data input practices, and responsibility accountability of ensuring the soundness of HR data. Special care should be taken regarding how HRIS information will be integrated with other organizational information systems like payroll, finance, and operations management platform to ensure that HR information is always uniform and up to date throughout the enterprise.

Third, although service quality has the least direct impact on employee performance (= 0.198) of the three quality dimensions, it is still a statistically significant predictor and its role in long-term HRIS sustainability cannot be undermined. Companies failing to offer post-implementation assistance tend to suffer quick depreciations in the use of HRIS when unreliable technical support and absence of user support kill initial excitement of using the new system. Big Iraqi organizations are thus advised to put in place a strong HRIS support system, such as having specific internal help desks that specialize in HR technology, routinely training and refresher users, and strong vendor support services with certain service level guarantees. The higher performance outcomes in the banking sector (R 2 = 0.612) imply the investments in service quality (HRIS) are well paid because banks generally are more developed in the management of their IT governance and are more experienced in handling enterprise technology support functions than other industries.

Implications for HR Policy and Organizational Strategy

Strategically speaking, the results of this work can be seen as a strong piece of evidence according to numerous HRIS investments being a high-paying investment in the use of organizational resources within the Iraqi setting in the large enterprise context. The R2 of the study of 0.549 is an appreciable dimension that shows that HRIS quality dimensions cumulatively explain the variation in employee performance, which is considerable and is a compelling reason to enhance the strategic value of HR technology in influencing organizational performance. The Iraqi HR and IT senior executives can use this to develop the business case of HRIS investment; to prove to their boards and executive group that the quality enhancement of HRIS has quantifiable benefits in the form of productivity of the workforce, task execution, and satisfaction by the employees. Findings of the effect size provide a useful guide on allocating investment on the three quality dimensions by indicating that system quality has around 50 per cent contribution to the overall HRIS performance effect, information quality has around 30 per cent contribution, and service quality has around 20 per cent contribution to the overall HRIS performance effect. Small organizations should initially work on attaining high quality of the system and then gradually enhance the capabilities of information quality and service quality.

The sectoral moderation results are also of strategic significance. The fact that banking organizations report the highest HRIS effectiveness scores (R 2 = 0.612) and manufacturing organizations report the lowest ones (R 2 = 0.523) indicates that sector-specific strategies of implementation should be employed. In manufacturing industries, where the performance of HRIS could be limited by shift-work schedules, excessive numbers of workers per hour, workforce with a wide range of educational qualifications and high levels of union or collective labor agreements, organizations might be compelled to follow more focused change management processes and more rigorous user training initiatives to experience similar performance impacts as those observed in the banking and oil and gas industries. The high service quality scheme (0.245) of telecommunication companies in all the sectors could be attributed to the technology-oriented culture of such providers and the higher level of familiarity of the employees with digital tools and systems, which makes cultural congruence between the overall digital maturity of the organization and implementation of the HRIS a viable success factor.

Future Research Directions

The current work leaves several avenues in future research, which may inform the further research on the effectiveness of HRIS in the context of the Iraqi and the overall Middle East organizations. To begin with, longitudinal research designs would allow researchers to investigate causal qualifiers of HRIS quality and employee performance over time that removes the issue of reverse causality inherent in cross-sectional research. This type of research might follow employee performance curves pre-implementation, during implementation, and post implementation to have deeper evidence of how HRIS quality benefits are translated into long-term benefits in performance. Second, future research needs to analyze the mediating variables, including HRIS self-efficacy, technology anxiety, and digital literacy, at individual levels in the association between HRIS quality and employee performance. This set of individual difference variables can provide some considerable amount of variance in the performance outcomes that cannot be attributed to organizational levels of quality dimensions alone. Third, the increased relevance of cloud-based HRIS solutions, artificial intelligence-based HR analytics, and mobile HRIS accessibility imply that the three-dimensional quality framework adopted in the present study might have to be

broadened in terms of its inclusion of other quality dimensions pertinent to the next-generation HR technology platform. Further studies are needed to determine whether the relative significance of system quality, information quality and service quality can be maintained as HRIS technology evolves, or the new technologies have moved the effectiveness drivers. Fourth, some comparative research using large and medium-sized Iraqi firms would help shed light on whether the HRIS-performance correlations found in this study can be generalized to include different types of organizations in the large and small-size category, or whether the nature of the technology adoption and performance effects of technology ownership are different in large and small organizations.

International Comparison

Though the research results appear to be quite consistent with the world research, it also becomes evident that various locations have different landscapes. The overall R^2 of 0.549 is very close to the R^2 values of both meta-analysis (R^2 = 0.52-0.58) and GCC study (R^2 = 0.534). However, quality system dominance (0.421) outperforms those of Chen and Rodriguez (2024) (0.34 and 0.35) and indicates what could be an example of a community of national values, where basic functionality is put first, then advanced features.

Sectoral Analysis: Banking Leadership: Thereby the better performance (R 2 = 0.612) in banking leadership.

Manufacturing difficulties: With lower effectiveness (R2 = 0.523) we have implementation barriers to account. These may be operational priorities, diversity of workforce, sensitivity of costs and the traditional organization culture.

Oil & Gas Success: The operational efficiency of the oil and gas companies (R^2 = 0.589) is important as well, to ensure safety via practices, to convince the international rules and regulations to fit well in oneself, grasping of technical talents.

2. Limitations and Methodological Constraints
6.1. Design Limitations

Cross-sectional limitations: A causal relationship cannot be developed between quality dimensions of HRIS and performance outcome Although theoretically, the causation may be suggested, it is impossible to disapprove of a temporal precedence that causes the potential reverse causation e.g. high-performing companies may simply spend more money on quality HRIS systems.

Shared Method: Statistical control might give bias even when using a single source of data or self-report (Harman test, CFA). The opinions of the human resource directors might not reflect the organizational differences and end-user experience with HRIS systems of other people in their firm.

Single Respondent Bias: The data collected based on one representative in an organization will not provide the ability to get a wide overview of the organization and will not represent the various departments' perceptions on HRIS effectiveness.

6.2. Sampling Limitations
Organizational Size Threshold: With 500 as the size of large business threshold, then geo-specificity informs us that this threshold can barely be utilized on a small or medium-sized business now also experiencing the pinch. Extra expenses because of media and technology or complex human resources.
Geographic Concentration: The companies located in major Iraqi cities such as Baghdad, Basra, and Erbil may bias the study in that organizations in non-urban areas or those with different technological infrastructure and human resources availability are not studied.
Temporal Constraints: In view of the rapid growth and evolution of technology, our findings must be seen as being of limited time span, notably when opposition HRIS technological advancement including AI, machine learning, and cloud computing integration has occurred.

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Informed Consent: Informed consent was obtained from all individual participants included in the study.

Data Availability: The datasets generated and analyzed during the current study are available from the corresponding author on reasonable request.
Authors' Contributions: All authors contributed to the study conception, design, data collection, and analysis. The final manuscript was read and approved by all authors.

8. Conclusion

Regrettably, even though organizational research of this type is only a cross-section, this is the first study to give comprehensive empirical evidence of HRIS effectiveness in big Iraqi enterprises. This particular study validates the strategic HRIS implementation as both practically and statistically significant as well theoretically rational. The relationship in the heavy interpretation makes it hard to argue against widespread off-shoring of industry: philosophical 'data analysis'. Longitudinal, multi-level future research ought therefore to be carried out to establish how HRIS is effective in corporate contexts such as developing economies.

The work is an important contribution to the increasing literature on the adoption of HR technologies in emerging economies, and the results of the research have significant consequences on the scholarly studies and organizational practice in the Middle East, including Iraq.

That HRIS quality dimensions system quality, information quality, and service quality all, in turn, accounted for a statistically significant proportion of variance in employee performance outcomes in large organizations in Iraq, i.e., 55 percent, is rather a strong indication of the strategic usefulness of HR technology investment in the present situation. This result is especially interesting because Iraq is a problematic area in terms of technology adoption, as it has unstable IT infrastructures, diverse organizational cultures, and most companies have used paper-based HR in most areas.

The fact that system quality is the strongest predictor of employee performance (0.421, f 2= 0.378) is both consistent with current international literature and, at the same time, indicates a significant contextual nuance: in the Iraqi organizational setting, where the availability of the most basic form of technology cannot always be determined, employees value reliable, accessible and easy to use systems more than evaluating high-quality features and This observation implies that organizations intending on implementing HRIS ought to ensure that they get the technical basics right before they can lay hands on more sophisticated HRIS features. An excellent, dependable and easy to use system that employees are comfortable utilizing in their daily tasks will create many more performance values than a system with great features that are marred by technical problems, slowness or a confusing user interface. This observation can be extended not just to the context of Iraqi organizations but also to all the contexts of the developing economies where the basic concerns of quality of the system that might be violated can become much more popular in comparison to the sophisticated capacities of HR analytics.

The strong and positive correlation between information quality and employee performance ($\beta = 0.291$), points to the essentiality of data management in HRIS implementation. To the Iraqi organizations, this discovery is quite a localized piece of information: going paperless in HR management is just half the battle with HRIS. The shift should be coupled with sound mechanisms of testing the correctness, fullness, and timeliness of HR information since the performance gains of HRIS investment is directly dependent on the quality of the information generated by the system. When organizations adopt HRIS without considering data management practices, they may end up having costly systems that yield unreliable results that undermine the trust of employees in technology and the anticipated results to performance. An effective HRIS information quality strategy will thus involve not only financial investment in the capabilities of the system, but also a commitment of the organization to the changes of culture and process required to sustain the desired high levels of data integrity in the long term.

The outcomes of the moderation analysis indicate that there are significant sector-specific dynamics of the HRIS-performance relationship. The high-performance results of the banking sector can be attributed to the peculiarities of this industry in Iraq: stringent regulations on correct maintenance of HR records, intensive level of education of the personnel, developed IT-based infrastructure, and the culture of formal management of processes, which is perfectly consistent with the possibilities of HRIS. Conversely, the relatively inferior performance results of the manufacturing industry indicate that the industrial organization might encounter other challenges to HRIS efficiency such as the management of many shift workers, the difficulty of availing HRIS to workers in the production floor as well as, the integrated HRIS with a complex operations management system. All these industry-specific results should be used to formulate industry-specific HRIS strategy advice to various industries in Iraq as opposed to a blanket approach to the adoption of HR technology. Policymakers and industry associations can: Be of value in developing sector-based guides on how to implement HRIS and can assist knowledge-sharing between early adopters and those organizations that are still at the early stages of implementing HRIS.

At the national policy level, the results of this research are powerful empirical background to the state efforts to make the corporate sector in Iraq more digitalized faster. Huge organizations, which this research proves to be able to do, can exploit the wide-reaching performance gains through strategic HRIS investment, and the positive spillover to national productivity, employment standard and economic competitiveness. Government programs covering adoption of HRIS by providing tax subsidies, technology development grants, and public- private IT infrastructure development and capacity building programs of HR and IT professionals would be delivering high returns in terms of more productive workforce in the large enterprise sector. Also, the emergence of national HRIS standards and data protection laws would offer a more facilitating climate to adoption of HRIS by offering clear

legal framework in management of HR data and eliminate uncertainty among organizations contemplating large-scale investments in HR technology.

Finally, the contribution this study has made to the existing HRIS effectiveness research in the developing economies is that it offers rigorous empirical evidence of the relationships between the HRIS quality dimensions and the employee performance outcomes in a national setting that has not been researched heavily. The tested three-dimensional HRIS quality framework has shown cross cultural resilience and substantiates the relevance of the developed IS success theories to the Iraqi organization environment. The sectoral analysis provides a significant shading to our perception of the HRIS effectiveness being moderated by the influence of organizational context, whereas the robustness checks ensure the study findings are stable and reliable. The combined contributions not only contribute to our theoretical knowledge about the mechanisms of HRIS effectiveness in contexts that are developing economies but also can also generate practical guidance to organizations, policy makers, and HR technology vendors that may be working in the context of Iraq and other similar situations in the region. With Iraq persisting with its economic growth and organizational modernization plan, the strategic implementation of quality HRIS solutions can be one of the most influential investment opportunities large companies can have in the functionality and welfare of the most asset that the company has, its human capital.

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