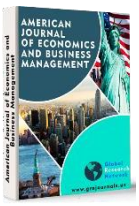

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The Transformation of Human Resource Management in the Digital Era: Challenges and Opportunities in Building a Sustainable Future Workforce

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Abstract:
Amid the accelerating pace of digital transformation, Human Resource Management (HRM) has emerged as a critical strategic element in building a sustainable future workforce, facing new challenges while leveraging promising opportunities. In this context, the present study aims to explore the types and significance of digital transformation technologies necessary for designing HR systems and to examine the extent to which this transformation enhances the efficiency and effectiveness of HRM, as a fundamental pillar in the strategic planning of economic units. Inspired by the study's title, "The Transformation of Human Resource Management in the Digital Era: Challenges and Opportunities in Building a Sustainable Future Workforce", the researcher seeks to explore how digital transformation fosters coordination and integration between HR systems and HR functions, such as workforce planning, performance evaluation, and decision-making related to recruitment and training. Building on the research problem, the study develops a hypothetical model to clarify the nature of the relationships and mutual effects between the variables of digital transformation, HR systems design, and HRM within the strategic framework of the economic unit.

Keywords: Human Resource Management, Digital Transformation, Sustainability.

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Introduction

HR systems are considered among the most important and oldest information systems within an economic unit, as they represent one of the main sources of information upon which all administrative levels and external entities rely when making decisions. These systems process vast amounts of data using various techniques and are closely integrated with other information systems. With the ongoing developments in information technology environments, many new technologies have emerged that have drastically transformed the nature of work, leading to the emergence of the concept of "digital transformation" — a comprehensive restructuring of economic units involving fundamental changes across all areas and organizational functions.

Digital transformation is a comprehensive process that extends beyond the technical aspects to include human resources, which play a pivotal role in the success of transformation efforts. HR systems, in the context of digital transformation, directly impact core HRM functions such as workforce planning, skills development, performance management, and decisions related to recruitment and training by providing accurate data and necessary analytics to support such decisions.

Therefore, there is an urgent need to design management information systems that consider the evolving nature of modern digital technologies, ensuring their integration with HRM functions and enhancing the economic unit's ability to achieve its strategic objectives. Understanding the potential impacts of using digital transformation technologies in designing the elements and components of HR systems, including the human infrastructure, can maximize the benefits offered by these technologies and support the development of a sustainable competitive advantage that strengthens institutional performance over the long term.

Section One: Research Methodology

First: Research Problem

The study addresses the issue of identifying the potential impact of digital transformation on the strategic design of HR systems amid continuous technological advancements. These developments have a direct influence on the performance of economic units in general and on their core functions, particularly Human Resource Management. The successful implementation of HR systems in a modern digital environment largely depends on their integration with HRM functions, which are vital to achieving both strategic and operational goals. The study seeks to answer the following key questions:

1. What digital transformation technologies are economic units aiming to leverage to achieve their goals, particularly those affecting HR system operations related to functions such as recruitment, training, and performance evaluation?

2. What are the potential effects of using digital transformation technologies on the design elements and components of HR systems, including human components? How can these technologies be employed to enhance efficiency and effectiveness in HRM?

3. How can HR systems be designed to support the achievement of strategic and operational objectives, especially in assisting HRM with decisions related to workforce development?

Second: Research Objectives

The study seeks to achieve the following objectives by linking digital transformation, HR systems design, and the support of HRM functions:

1. To identify digital transformation technologies that can be utilized in HR systems generally and in their design specifically, with a focus on supporting HR functions such as recruitment, training, and workforce planning.

2. To explore the potential for incorporating strategic thinking among system designers in order to develop administrative information systems that can adapt to the dynamic and complex work environment.

3. To identify potential effects of digital transformation on the design of HR systems, particularly regarding integration with core HR functions.

Third: Research Significance

This study gains its significance by addressing a contemporary issue — the potential effects of digital transformation on HR systems design — within a strategic framework that emphasizes the need to keep pace with rapid changes in information technology environments. These changes directly impact how HR systems function and the core operations of economic units, especially HRM. As reliance on advanced digital technologies increases, there is a pressing need to design flexible administrative information systems capable of adapting to ongoing changes. These systems must not only manage administrative data but also support HR decisions related to recruitment,

performance management, and professional development.

In this context, the integration of strategic flexibility into the design of HR systems becomes essential to accommodate technological and human changes, providing a reliable information base that supports HR functions in achieving efficiency and effectiveness. Thus, the study aims to show how these systems can contribute to building a sustainable technological competitive advantage for economic units by improving the quality of human capital management decisions, considering human capital as one of the organization's most valuable assets.

Fourth: Research Hypothesis

"**There is a statistically significant correlation between digital transformation technologies and the design of HR system components, allowing the systems to be optimized and adapted to achieve the strategic and operational goals of the economic unit.**"

Fifth: Data Sources and Collection Methods

1. **Sources for the Theoretical Aspect:**

o Arabic and foreign books available in business and economics college libraries.

o Arabic and foreign theses and dissertations available in libraries or obtained online.

o Academic research papers, journals, and articles in Arabic and foreign languages sourced from libraries or online databases.

2. **Sources for the Practical Aspect:**

o Field observations and real-world engagement with the research sample.

o Personal interviews with relevant officials and specialists.

Chapter Two: Theoretical Framework

2.1 Concept of Digital Transformation

Digital Transformation (DT) is one of the most prominent phenomena in today's world, attracting the attention of many economic units and stakeholders. It has become a field rich with theories and interpretations and a topic of widespread debate among all segments of leadership in society, despite their differing academic and professional backgrounds (Zhao et al., 2015, p.17). Digital transformation has facilitated the shift of economic units from a local internal environment to a distinctive position integrated with other environments, resulting in direct reflections and continuous growth (Shaalan, 2016, p.49).

The emergence of this term coincided with the rise of the Fourth Industrial Revolution and the expansion in the use of digital tools and advanced technologies. This evolution necessitated a new kind of workforce, characterized by technical savvy. It became essential to adapt to computer usage, digitize operations, and promote lifelong learning and continuous training to acquire future-oriented skills, especially those related to digital competencies (Manda & Dhaou, 2019, p.244).

Digital transformation encompasses the changes brought about by digital technologies, affecting all aspects of human life and resulting in an interconnected reality within the context of the digital economic unit. This transformation encouraged organizational adaptation as applications and social platforms became ubiquitous (Wilms et al., 2017, p.6).

Researchers have proposed various definitions and views concerning the concept of digital transformation. Initially, it was defined as the transitional phase from reliance on traditional communication methods to the comprehensive and optimal use of modern digital communication tools to perform public relations functions more effectively (Al-

Hamdani, 2015, p.138).

Berghaus & Back (2016, p.3) describe it as a radical change within the economic unit that has extraordinary effects on strategies and organizational structure.

Other researchers have noted that digital transformation involves the transition of government sectors or companies to a business model based on digital technologies to innovate products and services and create new revenue streams that enhance product value (Al-Bar & Al-Marhabi, 2018, p.4).

Boudin (2017, p.3) identifies the key pillars of digital transformation as follows:

1. Developing digital strategies and a business model.

2. Establishing a digital infrastructure to enable services based on digital technologies.

3. Innovating a wide range of services.

4. Training and skill development to foster innovation and facilitate the adoption of new uses.

5. Assessing the digital readiness of the economic unit.

Ortiza et al. (2020, p.338) and Rogers (2016, p.198) highlight several advantages of digital transformation by comparing the state of economic units before and after digital transformation, summarized in the following table:

Table: Impacts of Digital Transformation on the Economic Unit

Domain	Before Transformation	After Transformation
Customers	Communication is mass-oriented, with the unit being the main influencer.	Communication is interactive, with the customer influencing marketing.
Competition	Competitors are known and specific.	Competition is open, and competitors are unknown.
Data	Data is pre-planned through customer surveys. Used mainly for evaluation and forecasting.	Data is generated continuously through all internal and external interactions.
Innovation	Innovation focuses on the final product. Decisions rely on management analysis and intuition.	Innovation is driven by continuous learning and real-time customer feedback.
Value	Company value is fixed and unchanging.	Value fluctuates based on market demands.

(Source: Carla Victoria Guzmán-Ortiza et al., 2020. *Impact of digital transformation on the individual job performance of insurance companies in Peru*, IJDNS)

From the above, the researcher concludes that digital transformation represents the use of modern technologies by economic units to manage their activities, aiming for a radical change in their operational structure. This includes the processing and analysis of internal data and information, leveraging digital media for communication between employees and with the external environment.

The Importance of Digital Transformation

The significance of digital transformation lies in maintaining operational speed over time. It positively contributes to time management through dedicated programs and systems, and many countries have activated such services across all sectors. This transformation has produced creative and positive business outcomes. Additionally, digital transformation has led to more cautious financial behavior among people, especially customers who now benefit from rapid advancements (Press & Jabr, 2021, p.211). It is also crucial for modern production and distribution through digital customer channels, improved user experience, and flexibility in product and service offerings (Nicoletti, 2017, p.11).

Digital transformation plays a major role in facilitating information and data exchange anytime and anywhere. One of its main benefits is cost reduction through digital systems. It also enhances organizational flexibility, keeps pace with global market dynamics, and transforms traditional business models (Saddouki et al., 2021, p.102).

It also enables the building of efficient, competitive, and sustainable communities by improving services for consumers, employees, and users through tailored operational processes and strategic implementation plans (Al-Bar & Al-Marhabi, 2018, pp.1–18).

Key Points of Importance:

1. Focus on efficiency and digital innovation by utilizing digital capabilities to manage post-transformation operations and define product/service strategies (Mergel & Edelmann, 2019, p.1).

2. Eliminate the need for excessive paperwork and storage through digitization (Mehri & Ben Jameh, 2011, p.65).

3. Enable socio-economic, human, and cultural development due to its superior and cost-effective communication capabilities (Al-Shamayleh et al., 2015, p.99).

Thus, the researcher views digital transformation as essential for achieving strategic objectives and aligning with digitally savvy customers.

Steps of Digital Transformation

Transformation is a new idea or method involving specific steps that contribute to solving a problem with innovative solutions. These steps enable new thinking aligned with the 21st-century demands and the global society's interest in advanced technologies.

Key steps include:

1. **Developing a digital strategy and improvement plans**, since success depends on well-defined strategies (Matt et al., 2015, p.1).

2. **Assessing current digital capabilities** and identifying optimal structures for marketing activities and investment planning, while managing barriers and change (Al-Bar, 2017, p.2).

Al-Hadi (2018, pp.22–23) outlines steps that align with strategic planning, such as:

- Forming leadership for digital transformation,
- Developing a vision and strategy,
- Utilizing human resources,
- Digitally redesigning processes,
- Making data-driven decisions to develop smarter economic units.

Finally, **change management** is essential to reach strategic goals, requiring an innovation-friendly culture and changes in infrastructure, operating models, and product/service marketing (Ramoud, 2021, p.6).

Requirements for Digital Transformation

Information is the lifeblood of digital economic units, ensuring managerial integration. Digital transformation requires a robust management system. Key requirements include (Al-Haroun & Barakat, 2019, pp.446–447):

1. **Technologies**: Devices, media, software, and infrastructure managed by technical teams to ensure service delivery.

2. **Data**: Regular, reliable data management, including analytics tools and forecasting to align with goals.

3. **Human Resources**: Qualified personnel capable of leveraging data and making informed decisions.

4. **Financial Resources**: Adequate funding for equipment, infrastructure, and ongoing maintenance.

5. **Technical Knowledge**: Understanding available technologies and ensuring employees can use them effectively.

6. **Bridging the Digital Gap**: Identify existing tools and skills versus what is needed and act accordingly.

7. **Processes**: Establish technical infrastructure for internal and external process development and control.

The researcher asserts that these requirements must be met collectively and integrated with core digital transformation components to develop a competitive, tech-driven unit aligned with the overall strategic vision—what he refers to as a *technostrategy*.

Models of Digital Transformation for Economic Units

Digital transformation has become a strategic priority in public and private sectors. This shift toward smart technologies brings significant benefits, including cost-effective, high-quality solutions designed to meet human needs (Hammad, 2020, p.432). The key transformation models include:

1. **Strategic Transformation Model**: Uses strategic planning, treating IT as a competitive asset, where the unit's position is determined by the value of its information systems (Zaidan, 2021, p.474).

2. **Organizational Development Model**: Focuses on learning, digital literacy, and requires system analysts and IT consultants to diagnose and implement changes (Ali, 2013, pp.537–539).

3. **Cost-Benefit Model**: Compares the costs of transformation with the expected gains, although some qualitative elements may be hard to quantify (Ahmed, 2021, p.22).

4. **Ideal Model**: Seeks optimal solutions through simulations, cost optimization, and continual software development (Jolfsson & Saunders, 2010, pp.62–64).

5. **Digital Awareness Model**: Aims to enhance individual capacity to understand and use technology (Al-Dhafiri, 2021, p.22).

The researcher proposes integrating these models into a comprehensive framework that aligns with both main and sub-systems of the economic unit, such as management information systems, based on the hierarchical system concept—where each system is a subset of a larger integrated system.

Human Resource Management (HRM)

The Concepts of HRM

There are various expressions used for the activity responsible for managing human resources in an organization. Some use the term "personnel management" to refer to managing the individuals working in the organization. (Schuler, 2015: 332) Over time, the concept evolved, and the term "human resource management" (HRM) was introduced to refer to the activity responsible for managing human resources, whether they are part of the workforce in organizations or individuals capable of working but not yet provided with employment opportunities in a specific organization (Hashim, 2020: 140). Modern

trends converge on the fact that human resource management in an organization is considered one of the most important activities, and it is seen as an activity that can provide the organization with a competitive advantage that competitors cannot easily replicate, since it deals with human beings, whose needs, desires, and expectations are irreplaceable. The initial ideas and principles of this activity stemmed from fields like industrial relations, labor economics, industrial psychology, sociology, anthropology, organizational behavior, social psychology, political science, and public administration. These fields interacted with each other, forming what is known as "employee management," then "personnel management," and later "human resource management" and finally "strategic human resource management." The latter is responsible for aligning the organization with the environment by ensuring alignment between individuals, the organization, and the environment (Al-Hiti, 2020: 19-20). Based on the above, human resources are considered one of the valuable and necessary assets for an organization that cannot be dispensed with or replaced.

In recent years, organizations have started to view HRM practices as the primary and direct means of achieving organizational profitability (Noe, et al., 2014: 3). It is hard to imagine any organization achieving efficiency and effectiveness without having effective HRM programs and activities. Human resource management (HRM) is defined as "the effective management of people at work." It is also concerned with examining what can or should be done to make workers more productive or better meet job requirements (Ivancevich, 1998: 3-8). HRM is also defined as "the process of acquiring, training, evaluating, compensating employees, and managing their work relationships, health, safety, and issues related to fairness" (Gary Dessler, 2013: 2).

Based on the above, HRM can be defined as "the organized planning and coordination of basic organizational processes such as job design, recruitment, training, evaluation, motivation, and protection."

Goals of HRM

Each function within an organization has its objectives. Based on this, several goals of human resource management have been outlined, which can be clarified as follows: (Ivancevich, 2018: 9)

1. Assisting the organization in achieving its goals.

2. Effectively and efficiently employing the talents and capabilities of the workforce.

3. Equipping the organization with well-trained and highly motivated employees.

4. Achieving employee satisfaction to some extent.

5. Developing and maintaining a long working life, making employment in the organization desirable.

6. Communicating HR policies to all employees.

7. Supporting and sustaining ethical policies and practices and promoting socially responsible behavior.

8. Driving change to achieve mutual competitive advantages for individuals, groups, organizations, and the public.

Importance of HRM

The importance of HRM can be seen through the role it plays in various analytical, diagnostic, and creative aspects in every area of HRM activities (Wright, 2011: 92). These important aspects include the following:

1. Implementing strategies and allocating organizational resources and production processes, as well as the responsibilities of individuals related to organizational performance and culture, which make innovation a dynamic and effective process (Rucce, et al., 2018: 82).

2. Its importance also shows in the role it plays in organizations, achieving the optimal and most effective use of individuals (employees) to accomplish organizational and individual goals (Ivancevich, 2018: 8).

3. Its importance is manifested in its ability to initiate and lead environmental analysis regarding HR data, both in terms of quantity and quality, according to the nature of the business and its requirements, ensuring effective and successful management (Decenzo & Robbins, 2019: 15).

4. HRM's importance is highlighted through its creative roles, such as developing emergent strategies (unplanned strategies) and achieving competitive advantages by developing human capital sources that provide the organization with unique capabilities aligned with the changing environment's requirements (Abbas, 2003: 29).

5. HRM's importance is also underscored by the role of workers in executing production processes, implementing planned strategies, supporting sales, customer service, research, and development efforts, and supporting organizational operations. Consequently, HRM supports future-oriented strategies for achieving long-term goals (Templeton, 2020: 132).

6. Some emphasize that the most significant and surprising change in HRM's role today is its increasing partnership in developing and executing corporate strategies (Gary Dessler, 2023: 5).

Historically, the prevailing concept of HR was considered a consultative function, which led some to view it as a lower priority. One opinion expressed was that HRM was often considered an operational function with no strategic value. However, a broader view holds that HRM plays a vital role in aligning and adapting corporate strategy. Its role lies in adjusting individual HR practices to align with overall and competitive strategies, ensuring that the necessary HR resources and programs are in place to implement those strategies effectively (Gary Dessler, 2023: 12).

With the growing external influences on organizations, it has become necessary for organizations to leverage all their capabilities to face these influences, reevaluate their activities, and adopt strategic approaches in most aspects of their work. Successful organizations have emerged by developing robust HR strategies and emphasizing proper planning (Bratton & Gold, 2003: 49). Strategically, HRM is defined as "aligning HR practices with the organization's strategic goals to improve business performance and develop organizational cultures that support innovation and flexibility." HRM and senior management work together to formulate the company's business strategy. HRM strategy serves as the foundation for identifying the actions and procedures HR follows to assist the organization in achieving its strategic objectives (Gary Dessler, 2003: 5).

The Impact of Digital Transformation on HRM: Challenges and Opportunities in Building a Sustainable Future Workforce

Digital transformation is one of the key factors reshaping HRM. HR is no longer seen as a traditional function focused solely on recruitment and training; it has become a strategic player in building a sustainable future workforce. Digital transformation has led to the introduction of smart tools and applications that allow organizations to automate many administrative processes, analyze big data, and make data-driven decisions. On the other hand, this transformation has also introduced new challenges, including the need to develop new digital skills for workers, restructure traditional roles, and ensure a balance between automation and maintaining human values in the workplace.

However, the opportunities presented by digital transformation for HRM are evident in enhancing efficiency, improving the employee experience, and providing a flexible, interactive work environment that supports innovation and attracts talent. Digital transformation also helps build intelligent recruitment strategies and workforce planning based on predicting future needs, which enhances the sustainability of human capital and makes organizations more adaptable to rapid changes. Thus, studying the impact of digital transformation on HRM is crucial as it plays a central role in achieving growth and sustainability in modern economic units.

Chapter Three: The Applied Aspect

To gather data related to the practical aspect, the researcher designed a questionnaire form, which was presented to a selected sample of academics from Iraqi universities, holding PhD and Master's degrees in Human Resource Management. The questionnaire included two main sections. The first section addressed questions related to the independent variable (digital transformation), while the second section focused on the dependent variable (Human Resource Systems). The dependent variable was divided into two sub-variables: the first sub-variable covered the strategy for designing the elements of accounting information systems (inputs, operational processes, outputs, feedback), to test the first and second main hypotheses by testing the relationship for the first hypothesis and testing the impact for the second hypothesis. The second sub-variable included the strategy for designing the components of accounting information systems (document group, ledger group, chart of accounts, financial statements and reports), to test the third and fourth main hypotheses by testing the relationship for the third hypothesis and testing the impact for the fourth hypothesis.

Study Population:

The study population consisted of academics specializing in accounting in Iraqi universities and institutes with expertise in human resources systems, as well as other management-related specializations close to the nature of the questions. This approach ensured the ability of the respondents to understand and answer the questions scientifically and objectively, achieving the research's purpose and benefiting from their academic and professional experience in the field of accounting, which would positively impact the study's results.

Study Sample:

The study sample was selected from the study population. Due to the researcher's inability to obtain the exact and total number of academics specializing in human resources systems working in Iraqi universities and institutes, the researcher could not use specific methods to determine the sample size. However, the researcher aimed to gather as many opinions as possible from the study population, as increasing the sample size can provide stronger evidence of the population's characteristics, thus obtaining more credible results.

Reliability Measurement of the Questionnaire:

Reliability testing is one of the most common statistical methods used to measure the consistency of the scale used in the study. The reliability test aims to determine whether the same result would be obtained if the same scale were applied again to the same sample but at a different time. This test is applied based on Cronbach's alpha coefficient for each sub-dimension on one hand and for each main variable on the other hand, as well as its application on the overall study level. The test was applied on the total sample, which consisted of 82 forms, each containing 34 items. According to the test results, the Cronbach’s alpha values were high and exceeded the minimum threshold, reaching an overall value of 83%. This is considered good within the context of administrative studies.

Hypothesis Testing:

To achieve the objectives of the study, which aim to show the "impact of digital transformation on the strategy of designing accounting information systems" and analyze its realization at a detailed level, a series of hypotheses were tested to determine their acceptance or rejection. The statistical outputs from the statistical software program (SPSS V 26) were used to verify the success of the proposed study framework in clarifying the causal relationships between the study variables in the field of investigation. The main and sub-hypotheses were tested as follows:

First Hypothesis (Study Hypothesis) H1:

Digital transformation technologies have a statistically significant correlation with Human Resource Management Systems, to leverage the advantages of these systems and adapt them to achieve the strategic and operational goals of the economic unit.

Null Hypothesis (H0):

There is no statistically significant correlation between digital transformation technologies and the design of Human Resource Management Systems to leverage the advantages of these systems and adapt them to achieve the strategic and operational goals of the economic unit.

Table (1) Correlation Results Between Human Resource Management Systems and Digital Transformation

Human Resource Management Systems	Digital Transformation Techniques	Correlation Coefficient	T Value	Significance Level P-Value
		0.697	8.694	0.000**

$P \leq 0.05$, $N = 82$, $df = 80$

Highly significant at $p \leq 0.01$

Source: Prepared by the researcher based on the SPSS statistical programming results.

According to the results in Table (1) above, a significant correlation was observed between Human Resource Management Systems and digital transformation, with a significance level of 0.000. The correlation coefficient was 0.697, at the 0.05 significance level with a degree of freedom of 80. Based on the calculated T value of 8.694, which is greater than the critical value of 1.993, the first main hypothesis (study hypothesis) was confirmed: Digital transformation technologies have a statistically significant correlation with the design of Human Resource Management Systems to leverage the advantages of these systems and adapt them to achieve the strategic and operational goals of the economic unit.

This leads to the following sub-hypotheses:

1. **First Sub-Hypothesis (Study Hypothesis) H1:**

Digital transformation technologies have a statistically significant correlation with the design of Human Resource Management Systems to leverage the advantages of these systems and adapt them to create a strong workforce.

- **Null Hypothesis (H0):** There is no statistically significant correlation between cloud computing technology and the design of Human Resource Management Systems to leverage the advantages of these systems and adapt them to create a strong workforce.

Table (2) Correlation Results Between Human Resource Management Systems and Cloud Computing Technology

Human Resource Management Systems	Cloud Computing Technology	Correlation Coefficient	T Value	Significance Level P-Value
		0.409	4.009	0.000**

P ≤ 0.05, N = 82, df = 80

Highly significant at p ≤ 0.01

Source: Prepared by the researcher based on the SPSS statistical programming results.

According to the results in Table (2), a significant correlation was observed between Human Resource Management Systems and cloud computing technology, with a significance level of 0.000. The correlation coefficient was 0.409, at the 0.05 significance level with a degree of freedom of 80. Based on the calculated T value of 4.009, which is greater than the critical value of 1.993, the first sub-hypothesis of the first main hypothesis was confirmed: Cloud computing technology has a statistically significant correlation with the design of Human Resource Management Systems to leverage the advantages of these systems and adapt them to create a strong workforce.

2. **Second Sub-Hypothesis (Study Hypothesis) H1:**

Digital transformation has a statistically significant correlation with the design of Human Resource Management Systems to leverage the advantages of these systems and adapt them to create a sustainable workforce.

- **Null Hypothesis (H0):** There is no statistically significant correlation between digital transformation technologies and the design of Human Resource Management Systems to leverage the advantages of these systems and adapt them to create a sustainable workforce.

Table (3) Correlation Results Between Human Resource Management Systems and Big Data Technology

Human Resource Management Systems	Big Data Technology	Correlation Coefficient	T Value	Significance Level P-Value
		0.658	7.816	0.000**

P ≤ 0.05, N = 82, df = 80

Highly significant at p ≤ 0.01

Source: Prepared by the researcher based on the SPSS statistical programming results.

According to the results in Table (3), a significant correlation was observed between Human Resource Management Systems and big data technology, with a significance level of 0.000. The correlation coefficient was 0.658, at the 0.05 significance level with a degree of freedom of 80. Based on the calculated T value of 7.816, which is greater than the critical value of 1.993, the second sub-hypothesis of the first main hypothesis was confirmed: Digital transformation has a statistically significant correlation with the design of Human Resource Management Systems to leverage the advantages of these systems and adapt them to create a sustainable workforce.

hapter Four: Conclusions and Recommendations

I. Conclusions

1. **Integration of Digital Transformation Technologies with Human Resource Systems:** The integration of digital transformation technologies into Human Resource Management Systems requires a reevaluation of the system designs to keep pace with technological advancements and the demands of the modern work environment brought about by the

Fourth Industrial Revolution. This includes aligning systems with the economic unit's strategy, developing data processing mechanisms, and considering the potential impacts on the components and elements of the management system.

2. **Improved Accuracy and Reliability of Administrative Data:** Digital transformation technologies contribute to enhancing the accuracy and reliability of administrative information through self-checking capabilities and quality control, reducing human errors and increasing the credibility of the data.

3. **Transition from Traditional to Digital Processes:** Digital transformation allows for the replacement of manual and paper-based processes with integrated electronic systems, saving time and effort in data collection and analysis. This shift enables the reallocation of resources towards strategic activities that add value to the economic unit.

4. **Enhanced Reporting and Administrative Analysis:** Digital technologies facilitate the preparation of accurate and efficient accounting reports and the provision of advanced financial analyses that assist in strategic decision-making. These technologies also enhance data protection, increase flexibility in accessing information at any time and from anywhere, and simplify monitoring, performance measurement, and goal achievement.

5. **Improved Client Experience in Administrative Services:** Digital transformation helps develop accounting services offered to clients by facilitating communication, providing customized reports, and offering advanced analyses. This enhances the client experience and supports the sustainability of Human Resource Systems.

6. **Integration with Modern Innovation Technologies:** Digital transformation opens opportunities for integration with advanced technologies such as virtual and augmented reality, decentralized technologies, and encryption, which provides opportunities for developing innovative business models and improving reporting and control mechanisms.

7. **Importance of Digital Infrastructure:** The availability of a robust digital infrastructure is a cornerstone for the success of digital transformation, ensuring the sustainability of investments in modern technologies and achieving effective transformation in the business environment.

II. Recommendations

1. **Designing Administrative Information Systems as Part of the Economic Unit's Strategy:** Economic units should adopt a clear strategy for designing Human Resource Management Systems that align with their vision, mission, and strategic goals. The design of these systems should be an integral part of the overall strategy of the economic unit.

2. **Focus on Human Resources in System Design and Operation:** Accounting departments should focus on developing the human resources responsible for designing and operating Human Resource Management Systems. This can be achieved by enhancing their knowledge and technical skills in the field of digital transformation technologies.

3. **Strategic Planning for Digital Transformation in Administrative Work:** Accounting departments should develop integrated strategic plans for integrating digital transformation into their activities to keep up with rapid developments in information technology. This can be achieved through organizing training courses and specialized seminars to qualify employees and empower them to effectively use these technologies.

4. **Legal Support for Digital Transformation:** The process of designing and operating Human Resource Management Systems requires the enactment of legislation and laws that support and legalize the use of digital transformation technologies, ensuring effectiveness and reliability in the administrative work environment.

5. **Updating Academic Curricula in Light of Digital Transformation:** Given the role of universities and institutes in establishing knowledge for individuals working or intending

to work in the field of accounting organization, it is essential to continuously update educational curricula, especially regarding developments in digital transformation technologies related to Human Resource Management Systems.

6. **Promoting a Culture of Change Acceptance and Digital Transformation:** To ensure the success of any development or change process, awareness must be spread among employees about the importance of digital transformation and encourage them to adopt modern work practices. This requires enhancing collaboration between accounting departments in Iraqi universities and institutes, the Administrative Union, and accounting organizations to organize training courses and workshops that highlight the importance and role of digital transformation technologies in Human Resource Management Systems.

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