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The Impact of Smartphone Applications and other Digital Applications on Human Resources Management and Development

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Abstract

The impact of smartphone and digital applications on HRM activities, employing, internal communication, mentoring, process improvement, and work-life balance is examined in this study. The study focuses on how digital tools increase organizational effectiveness, improve employee experiences, and streamline HR operations. 50 valid responses were gathered from 183 surveys that were distributed to HR professionals who work for small-sized and medium-sized businesses (SMEs) in Jordan using a structured questionnaire. With a Cronbach's alpha coefficient above 0.7, the study's descriptive-analytical methodology and statistical analysis using SPSS ensured data reliability. The results show that digital applications are essential for improving management-employee communication, enabling training and development while on the go, and increasing worker productivity in general. Additionally, by guaranteeing the safe handling of employee data analysis, effective digital HR tools aid in strategic decision-making. Besides these advantages, challenges to full implementation still exist, including staff turnover to technological progress, security concerns, and gaps in digital literacy. This study highlights the necessity for organizations to implement secure, user-friendly digital solutions while providing ongoing training to optimize HR processes. Future study must explore the long-term implications of digital applications on workforce dynamics, assess the effect of AI in HRM, and evaluate how this kind of technologies impact employee engagement and performance across diverse organizational contexts.

Keywords: Smartphones, Digital Applications, Human Resources, SPSS Analysis, Questionnaire, Cronbach's alpha Coefficient

Introduction

Mobile apps and various digital tools have deeply changed the domain of human resource management and greatly aided its progress. Their influence encompasses enabling information access, as digital tools permit employees to retrieve their personal data, like

salaries and social benefits, more quickly and conveniently, which enhances employee self-management efficiency and streamlines recruitment and onboarding processes (Wahdaniah, Sucianti, Ambalele, & Tellu, 2023). Digital applications also provide tools to simplify recruitment and orientation processes, including the ability to submit job applications, schedule interviews, and interact with candidates effectively (Biea, Dinu, Bunica, & Jerdea, 2024). They also enhance communication and performance management through smartphone applications. Workers can effortlessly interact with their supervisors, obtain feedback on their performance, and improve their career growth through accessible educational resources. They also improve training and development by providing digital applications as online learning platforms, enabling employees to access different training courses and educational resources, refine their skills, boost their work performance, and increase productivity and efficiency (Mustafa & Lleshi, 2024). With fast and easy access to information and tools, employees can attain greater productivity and efficiency while handling their daily tasks (Davenport, 2005). In this manner, mobile applications and digital tools are essential in advancing and refining HRM, thereby aiding institutions in boosting their performance and reaching their objectives more efficiently. Among the many management departments within the company, HRM is one of the most crucial duties and responsibilities because it deals with the most costly and valuable resources that are used to carry out its operations, due to the rare characteristics it enjoys, especially its rarity and the difficulty of imitating or copying it by competitors, which is reflected in the organization's monopoly on it, and then its distinction compared to other organizations, therefore, it must modernize and develop its way of managing these HR using its numerous systems, software, applications, networks, and information-saving and archiving tools that made the organization's tasks and complex processes easier to understand and carry out. (Biouaraine & Ridoini, 2024) (Benabou, Touhami, & Demraoui, 2024, May)

Study Problem

In the current digital era, smartphones and digital applications significantly influence the workplace. Organizations depend on these resources for recruitment, development, communication, and performance evaluation. Although they provide numerous benefits, their true effect on human resource management isn't always clear-cut. Do they genuinely enhance efficiency and employee satisfaction, or do they create new obstacles? Examining these queries can assist companies in making knowledgeable choices regarding the use of technology in HR, ensuring it improves both organizational achievement and employee contentment.

Study Objectives

The goals are about the effect of smartphone applications and other digital applications on HRM and its development, by contributing to defining the scope of the research and achieving specific objectives:

1. Study the impact of smartphone applications and digital applications on recruitment and orientation processes in institutions.
2. Analyze how digital applications are used to improve communication between employees and their administration and how it affects performance measurement.
3. Explore how digital applications provide training and development and their impact on developing employee skills.

4. Analyze the impact of smartphone applications and digital applications on the work-life balance of employees.
5. Study how digital applications affect increasing productivity and efficiency at work and improving employee experience.
6. Analyze how digital applications are used to collect and analyze data to aide to strategic Making decisions in the HRM domain.
7. Explore the limitations and obstacles that may face smartphone applications and digital applications in the domain of HRM and determine how to overcome them. Defining precise objectives can help guide research and determine expected results and applications of the study in practical practice.

Importance of the Study

The role of smartphone applications and other digital applications on HR development and management makes this study significant. Additionally, the study makes a contribution:

Scientific Importance

- This study is complementary to recent studies in the field of the role of smartphone applications and other digital applications on HRM and development.
- It fills a scientific gap and works to provide information that benefits decision-makers. It also provides a reference in the library for researchers interested in the effect of smartphone applications and other digital applications on HRM and development, and may open horizons for new research.

Practical Importance

- Increasing effectiveness and efficiency, as this study contributes to understanding how digital technology can be used to improve the HRM processes, which leads to increased effectiveness and efficiency within institutions.
- Improving employee experience by understanding the impact of digital applications on employee experience, the place where you work can be improved and employee satisfaction and loyalty to the company increased.
- Developing human resource management strategies, as the study provides important insights into how digital applications can be integrated into human resource management strategies, and identifying points that can be improved or developed.
- Increasing competitiveness for institutions, as thanks to understanding the affect of digital applications on HRM, institutions can improve their productivity and enhance their ability to succeed in the labor market.
- Continuous development, as the study helps in following up on technological developments and determining how to use them better to improve human resource management and develop them continuously.

Study Questions

1. How does the use of smartphone applications and digital applications affect recruitment and employee selection processes in institutions?
2. What are employee experiences in using digital applications to communicate with their management and receive feedback on their performance?
3. How can digital applications be used to improve employee training and development?

4. What are the difficulties and potential barriers facing smartphone and digital applications in the context of HRM?
5. Can the effects of smartphone apps productivity and efficiency smartphones on workplace be measured?
6. How could employees' work-life balance be improved by digital applications?
7. How can digital application data be used to make strategic decisions in human resource management?
8. What are advanced analytics and AI technology influencing the invention of smartphone applications for HRM?
9. What are the best practices for smartphone and digital applications in improving human resource management?
10. How can organizations achieve sustainable development in HRM through the use of digital applications? These questions can be addressed in a study to understand the role of digital technology on HRM and its development in a comprehensive and integrated manner.

Study Hypotheses

Through the study problem and to accomplish its goals, the basic hypothesis of the research can be formulated as the following hypothesis:

Main hypothesis HO: At the significance level (0.05), there is no statistically significant impact of smartphone applications and other digital applications on human resource management and development.

This hypothesis includes a set of the following sub-hypotheses:

1. First sub-hypothesis HO1: There is no statistically significant impact at the significance level (0.05) of the application of productivity improvement for the impact of smartphone applications and other digital applications on human resource management and development.
2. Second sub-hypothesis HO2: There is no statistically significant impact at the significance level (0.05) of the application of communication and interaction for the impact of smartphone applications and other digital applications on human resource management and development.
3. Third sub-hypothesis HO3: There is no statistically significant impact at the significance level (0.05) of the application of performance evaluation for the impact of smartphone applications and other digital applications on human resource management and development.
4. Fourth sub-hypothesis HO4: There is no statistically significant effect at the significance level (0.05) for the application of saving time and effort for the impact of smartphone applications and other digital applications on HRM and development.

Study Terminology

The researchers define smartphones as:

They are advanced portable devices that combine the functions of traditional phones with personal computers in one small and portable device, and are characterized by their ability to connect to wireless networks and access the Internet (Gikas & Grant, 2013).

A process that involves using technologies to remake processes and activities to become more efficient and effective (Jung, 2014)

The researchers define digital applications as:
These software applications are made to carry out a range of tasks and operations on electronic devices, including computers, tablets, and smartphones (Page, 2014).
It is one of the most important branches of business administration through which the necessary employees are provided for the institution in various specializations and work to maintain, develop, and develop them and develop their various capabilities (Armstrong & Stephen, 2023)

The researchers define HR as:
It is the human element in the institution or organization, and includes all individuals working in it, and HR are considered an essential part of the production factors and contribute to reaching the objectives of the institution and ensuring its continuity (Awadhi & Muslim, 2023)

Related Works and Theoretical Literature

Related Works

1. Study (Al-Zadjali, 2023): "Governance of Artificial Intelligence in HRM in Institutions".
The study aimed to analyze the AI's contribution governance in HRM in institutions, identify the obstacles and challenges facing the use of smart technologies in this field, and provide recommendations and solutions to improve AI governance in HRM. The descriptive analytical approach was used in the study, and the researcher reached several results, The most crucial of which are: the necessity of establishing clear policies and procedures to ensure effective governance of AI applications in HRM in order to guarantee adherence to legal, regulatory, and ethical standards, as AI applications in HRM must be transparent and interpretable so that employees and other parties can understand the foundations on which decisions are made that help build trust in the process. The researcher suggests that the roles associated with the creation and execution of AI applications in HRM need to be explicitly outlined, and the entity accountable for enforcing policies and procedures regarding protection, privacy, transparency, fairness, and bias should be designated, as ongoing assessment and oversight of the governance framework for AI applications in HRM should occur to guarantee compliance and efficacy. Subsequently, researchers provide the following definition of AI: It involves a range of tools and techniques used to develop technological systems that can perform tasks considered intelligent in a way similar to that of humans. ML, NLP, robotics, computer vision, forecasting and planning, and human-computer interaction are just a few of the many domains that come under the category of artificial intelligence.

2. Study (Abdeen, September 2019): "Smartphone applications and their use in accessing electronic information sources: Scientific journals as a model." The study dealt with the topic of electronic information sources represented by scientific electronic journals, as it dealt with them from multiple aspects, including defining the concept, features, characteristics, and others. It also dealt with the topic of smart phones and dealt with their concept, benefits, and operating systems, reaching an explanation of one of the applications through which access is reached. The study problem focused on defining electronic journals, which is an application during which Researcher provides applications that can provide information to beneficiaries. Here, a set of questions were developed that fall within this field, and it aimed to define electronic journals, operating systems, and the benefits provided by smart phones. This study relied on the survey method in dealing with its topics, and it contained 15 forms.

3. Study (Zidane, 2018): "The effectiveness of smart phone applications for learning the practical aspects of the Dewey Decimal Classification." The study contributes to shedding light on how to benefit from the phones we carry in our hands to bring about a qualitative shift in the field of education, as the study's topic is clear from the lack of widespread use of smart phones for educational purposes despite their widespread use, cheap price, and availability among university students and their use only for traditional purposes such as making calls and sending messages. Its importance is derived from the general trend of the state towards developing education and using modern technology in education, and the recommendations of many conferences on the importance of learning via mobile phone. It seeks to verify the following hypotheses: the presence of positive attitudes among students towards learning using mobile phone, There are wide variations between the experimental group's average achievement test scores and those of the control group, supporting the experimental group. The study identified its tools in the attitude scale towards learning via mobile phone and an educational application via mobile phone designed by the researcher to conduct this experiment, and an achievement test. The study was applied to a sample of second-year students in the Department of Libraries and Information at Kafr El-Sheikh University, and they divided into experimental group and control group . The study concluded that 72% of students have an optimistic attitude into learning classification via mobile phone, which is a high percentage, and that categorization learning Study achievement rates are increased by 60% when using a mobile device. The study concluded with recommendations that library and information departments' curricula include a course on programming educational applications for mobile phones, and benefiting from educational mobile phone applications in distance education, continuing education, and in-service training programs.

4. (Nusair, Ahmed, & Nusair, 2022). "The role of AI in improving the performance and efficiency of HRM." The study aims to advance technologically so that numerous modern sciences can emerge and serve a variety of fields and specializations. One such science is artificial intelligence, which emerged from human experience, expertise, and intelligence and was translated into programs and devices that can be used by individuals to perform various tasks and activities, such as conducting scientific research experiments, or by institutions to perform various tasks and activities. The rapid changes in the use of new technologies have also resulted in significant changes in HRM, particularly since the widespread use of AI systems and its impact on current HRM practices. the paper aims to clarify the function of AI and the benefits it offers in terms of enhancing the effectiveness of HRM. In order to clarify the concepts, In this paper, the researchers will employ a qualitative academic approach.

Theoretical Literature

Smartphone Applications

Human resource management has undergone radical transformations thanks to rapid technological developments, most notably smartphone applications. These applications have become an integral part of HRM, playing a vital role in improving and simplifying the efficiency of operations. Smart applications provide instant access to information, rapid interaction between employees and management, and innovative solutions for attendance management, performance evaluation, training and development (Al-Faouri, Huson, Aljawarneh, & Alqmool, 2024). The use of smartphone applications in HRM enhances the ability of organizations to adapt to rapid changes in the work environment, and contributes to improving the employee experience by providing tools that facilitate their interaction with

various systems. In addition, these applications help in making informed decisions by providing accurate data and advanced analysis (Stone, Deadrick, Lukaszewski, & Johnson, 2015).

The Emergence of Smartphones

IBM released the first smartphone in 1992, and two years later, the device has been officially launched in the stores at a price of $1,100. Just six months later, the company had sold over 50,000 units. While personal cell phones had been around since the 1970s, the creation of the smartphone excited American consumers in a whole new way. The modern Internet emerged during the thirty years between the first cell phone and the first smartphone. This innovation initiated the onset of the digital communication phenomenon we witness today. So, where do we stand now since that landmark day in 1992, and in what ways has the emergence of the smartphone affected us as individuals and buyers? The initial smartphone, developed by IBM, was introduced in 1992 and became available for sale in 1994, its Simon Personal Communicator (SPC). Despite its lack of elegance, the device still contained many of the elements that have become standard for every smartphone. In addition to having a touch screen, the SPC could send and receive emails. It had a calendar, address book, and an original appointment scheduling system. Its unique and sophisticated features, which included both classical and predictive input screen keyboards, made it deserving of the moniker "world's first smartphone". The first smartphone to be linked to a real 3G network was in 2000. Taken separately, in order to facilitate wireless Internet access for portable e-devices, a mobile communications standard was created (Goel & Sahil, 2023). This augmented what had preceded smartphones, sending large email attachments, that may contain video conferencing and other multimedia. However, access to the Internet did not come at a great price. While the device price dropped to the $300-$700 range, the Internet connection was not bad. One of the most significant years in the development of smartphones was 2007. The first iPhone was unveiled by Steve Jobs and the Macworld team (Teodorescu, Durnoi, & Vargas, 2023). It was the first to give a full picture of the Internet and the most touchscreen-friendly gadget available. Customers could search web on the original iPhone just like they do on a PC's. The modern era has arrived since the iPhone was launched 12 years ago, and we have seen: 21 new iPhones, the advent of Android and Google's competition with the iPhone, hundreds of different Android devices and the development of apps and monetization, mobile photojournalism, and wireless texting and messaging. Of the 5 billion mobile phone owners globally, it is rated that at least 2.5 billion of them have a smartphone. That number is expected to rise.

The Concept of Smartphones

It is a device that combines the features of a cell phone with the features found in a PDA and a handheld computer such as text messaging, email, data storage, web browsing, MP3 player, fixed and moving video cameras and video calling (Abdeen, September 2019)

It is also known as a portable computer built into a mobile phone, and the smartphone is frequently equipped with intelligent technical programs and a display screen to handle personal data. It is also regarded as one of the gadgets that has an operating system that enables the use of numerous computer programs, including email, web browsing, music, pictures, and numerous other applications(Jung, 2014) (Teodorescu, Durnoi, & Vargas, 2023)

Using Human Resources for Smartphones

HR can be used in developing smartphone applications by applying human resource management principles in software design and implementation. Hiring multidisciplinary teams, encouraging communication, and providing feedback are vital. Professional development concepts can also be applied to motivate employees and enhance their performance in developing smartphone applications (Wahdaniah, Sucianti, Ambalele, & Tellu, 2023)

Human resource management can enhance smartphone app development by employing multidisciplinary teams and boosting communication and collaboration among members of the team. Furthermore, enhancing work quality can involve offering training and professional development opportunities for staff, while motivating them to gain the skills necessary for creating innovative and efficient applications (Stone, Deadrick, Lukaszewski, & Johnson, 2015) (Biouaraine & Ridoini, 2024)

Digital Applications

Digital applications are now a crucial component in every facet of everyday life, particularly in HRM. These applications are essential in changing how HR are handled and cultivated in organizations, aiding in attaining increased efficiency and quicker execution of diverse tasks (Alaghbari, Ateeq, Alzoraiki, Milhem, & Beshr, 2024, January). In addition to providing instant access to crucial data and information, digital applications provide advanced capabilities for performance analysis and evaluation, attendance and departure management, recruitment process facilitation, and training program development. These tools increase productivity and job satisfaction by enabling managers and staff to handle administrative tasks more skillfully and efficiently (Biea, Dinu, Bunica, & Jerdea, 2024). Digital applications streamline administrative tasks and offer creative solutions tailored to the demands of the contemporary age. For instance, these tools facilitate remote hiring procedures, offer e-learning programs, and establish ongoing performance assessment systems. They further improve communication and interaction among employees and management, fostering a more engaging and adaptable work environment (Biea, Dinu, Bunica, & Jerdea, 2024) (Mustafa & Lleshi, 2024)

The Concept of Digital Applications

A process that involves using technologies to redesign processes and activities to become more efficient and effective (Kubrak, Milani, & Nava, 2023).

The process by which companies shift to a business model that depends on digital technologies to defined and rise new goods and services, as well as to offer new sources of income and opportunities that raise the value of their goods (Kraus, et al., 2022).

Digital Transformation Requirements

Among the requirements of digital transformation:

1. Human resources: Organizations find it challenging to execute digital transformation without human resources, which are a crucial component. (Zhang & Chen, 2024).
2. Data: To analyze data in effective and regular way, in order to supply accurate and comprehensive qualitative data while creating and supplying the necessary instruments for statistical analysis and future data search (Sestino, Kahlawi, & Mauro, 2025).

3. Operations: To ensure the best possible implementation of digital transformation, business organizations need to set up an efficient technical framework that permits performance development on both the internal and external levels (Ebert & Duarte, 2018).
4. Technologies: which uses a system of devices, data, storage, and software that function in technical settings and information centers to enable the use of all things with continuous operational efficiency in order to carry out digital transformation (Ebert & Duarte, 2018).

Challenges facing HRM in Light of Digital Transformation

Digital transformation provides a great opportunity for HRM, but it comes with a set of challenges that require a well-thought-out strategy and an innovative approach to overcome them. Success in this field also requires blending modern technology with human skills, continuous training and adapting to cultural and organizational changes (Gadzali, Gazalin, Sutrisno, Prasetya, & Ausat, 2023).

Given that these changes are occurring more quickly and that the duration of digital transformation can be measured in months, some experts affirm that digital technologies are the primary agent behind electronic transformations in a variety of sectors. Business organizations and their employees need years before introducing such fundamental transformations in the way they work (Ebert & Duarte, 2018). Change management is by far the most sustainable obstacle to digital transformation. Although adopting technology still occupies a priority in the interests of business organizations, we consider that making essential modifications in leadership qualities and talents is crucial to completing the procedures of digital transformation successfully. In this context, HRM is currently confronted with three primary challenges: first, reorganizing the organization to capitalize on advancements in the digital transformation process; second, comprehending the modifications necessary to integrate digital transformation into HRM procedures; and third, facilitating and improving leadership abilities in the realm of digital transformation (Mihu, Pitic, & Bayraktar, 2023) (الرحمان, 2018)

Human Resources Management

The Concept of HR

It is important branches of business administration through which the necessary employees are provided for the institution in various specializations and work to maintain, develop, and develop them and develop their various capabilities (Al-Armeti, et al., 2023)

It is one of the most important departments responsible for administrative practices related to HR in order to get the goals set for the institution and also achieve the goals of employees (Al-Armeti, et al., 2023).

The management of HR is one of the most important basic functions carried out in the institution and through which it works to make the best use of HR through which a strategy is developed that contains many practices that are consistent with the strategy that contains many practices that are consistent with the mission of the institution and its strategies and contribute to achieving these goals (Al-Faouri, Huson, Aljawarneh, & Alqmool, 2024)

It is the human element in the institution or organization, and includes all individuals who work in it, and HR are considered an essential part of the production factors and contribute

to achieving the goals of the institution and check its ability to continue (Gadzali, Gazalin, Sutrisno, Prasetya, & Ausat, 2023).

The Importance of Determining the Performance of HR

The majority of businesses aim to ascertain the caliber and volume of their workers' work as well as their individual potentials and capabilities and the degree to which they require improvement. Because employees are so important to organizations, a system to assess their performance level must be prepared. This is because assessing employee performance is important, as evidenced by:

1. The process represents one of important activities of HRM, it considered an ongoing regulatory process through which HR performance is measured (Wood, 2003).
2. The organization can identify advantages and disadvantages, as well as the positive and negative effects they have on individual productivity and the effectiveness of the organization, by assessing the performance of its human resources (Alsakarneh, et al., 2024).
3. Increasing employee morale is achieved by creating an environment of mutual respect and understanding between management and staff when workers believe that management values their efforts and energies in carrying out their jobs and that the main objective of assessing HR performance is to address their performance shortcomings in focused on the findings of performance evaluations (Davenport, 2005).
4. In addition to helping to create the organization's work plan and what it needs in terms of training, development, and employee incentives, it also helps to uncover the hidden, untapped abilities of employees, change performance standards, and improve employee performance. 5. Giving workers the chance to learn from their mistakes, improve their abilities, and reach their goals of getting promoted, moving up the career ladder, receiving awards, and receiving high salaries (Wijayanti & Sari, 2023).

HR Performance Requirements

The effectiveness of the performance evaluation process is dependent on the availability of several capabilities or requirements, and it cannot be conducted independently from other administrative tasks and functions. These include:

1. The existence of an analysis of the various functions that all departments and units of the organization end with, as the existence of an accurate and comprehensive description of functions and tasks is the basis from which the main or important requirements necessary to accomplish this work or those functions are determined. Determining the contents of the job from duties, responsibilities, work conditions, and other activities required to accomplish the required functions and tasks is the basic pillar on which performance measurement and evaluation depends.
2. Establishing the requirements for performance measurement and assessment, which show that management bases evaluation criteria on data gleaned from job descriptions and work analysis results. Good evaluation standards, then, are those that emphasize the outcomes attained by the worker or employee; that is, the standard should include several questions that can be answered as follows: What? How much? When? These requirements must also be documented, realistic, and in accordance with employees' skills and abilities. The response must be accessible to all employees within the company (Vuong & Nguyen, 2022).

Characteristics of Determining the Level of Performance of HR

1. Analyzing and assessing performance are an ongoing procedure follows the person throughout his professional life (Schleicher, Baumann, Yim, & Yim, 2019).
2. To ensure that the measurement is sound and objective, someone who continuously observes and tracks performance must be present during the process (Alaghbari, Ateeq, Alzoraiki, Milhem, & Beshr, 2024, January).
3. Performance standards are necessary for the measurement process in order to evaluate an employee's efficiency and compare his performance to them (Gadzali, Gazalin, Sutrisno, Prasetya, & Ausat, 2023).
4. Measuring and analyzing somebody somewhere does not only involves deciding, after a specified amount of time, how much appreciation they deserve, which is the foundation for their ongoing employment, but it also means identifying ineffectuality to work on remedying them, and the task of the capacity building team and the direct manager is like a teacher who participates together in managing HR by suggesting the training or help that the employee needs (Alkudah, Almomani, & Sarayrah, 2024).
5. Measuring and evaluating performance are based on the evaluator's opinion, and therefore there is a high possibility of bias and favoritism if it is done by someone who has entered the positions for colleagues or subordinates (Al-Zadjali, 2023).
6. The outcomes of the measurement procedure help in doing crucial decisions such as promotion, rewards, and the training if they need, so the assessment needs to be unbiased. (Wood, 2003).
7. All employees at various administrative levels are subject to the performance evaluation process, the goal of which is for all of them to feel the integrity and stability of the evaluation system and to understand that all the employees are responsible for their own task and that their advancement in the ladder of jobs is dependent on their excellence in work (Schleicher, Baumann, Yim, & Yim, 2019).

Study Methodology

In this section, the scientific method used in the field study is defined, as well as the community and sample of the selected study, and the research tools used in collecting data.

To accomplish the goals of this research, we will use the descriptive methodology, as it commonly used approaches in studying human and social phenomena. The descriptive method is practical because it studies the phenomenon as it is in reality and employs a variety of suitable techniques for both quantity and quality to express and interpret the phenomenon in order to reach an understanding and analysis of the phenomenon under study. A numerical description is provided by the quantitative expression that clarifies the amount or size of the phenomenon and the degree of its connection to other hypothesis; however, it explains the problem's qualitative expression and makes its functionalities clear (Armstrong & Stephen, 2023).

Data Sources and Collection

This study is based on the following data sources (Ajayi, 2017):

- Primary sources: These consist of information retrieved from surveys given to the study population, as well as the questionnaire itself, which provided the key instrument for the research and contained several phrases reflecting the goals and inquiries of the study that the participants were expected to respond to.

- Secondary sources: Researchers explored books, papers, and electronic publications, as well as university publications and reports, that were directly or indirectly related to the topic of study and that helped the study process. Finding the foundations and appropriate techniques for writing researches as well as obtaining a comprehensive understanding of the most major developments that have occurred and are taking place in the field of our existing research are the objectives of using secondary sources in this study.

Study Community and Sample

The study community is represented in identifying companies, as a survey was conducted on employees, while the used to enhance HRM processessize was (50) individuals.

Study Tool

Within the framework of the field study and with the aim of the impact of smart phone applications and other digital applications on HRM and development, the questionnaire was chosen as a means of collecting data.

Validity and Reliability of the Study

Apparent Validity

To verifying the validity, and ensuring that it serves its objectives. The questionnaire was sent to judge panel in our field of specialization, and they were instructed to examine the measurement tool and share their thoughts on it regarding the phrase's correctness for the content, evaluating the study tool's suitability in relation to the quantity of phrases, their comprehensiveness and diversity of their content, and evaluating the level of linguistic formulation and production, or any notes regarding modification, change or deletion.

Reliability of the Study

Table 1 shows the reliability and validity coefficient for the dimensions of the role of advanced robotics technology in improving manufacturing processes and boosting efficiency in industrial companies. The reliability of the questionnaire was confirmed using the Cronbach's alpha coefficient method. The questionnaire items are considered to be internally stable and consistent if the coefficient of Cronbach's alpha is greater than 0.70, according to sources, and not internally stable and consistent if the coefficient of Cronbach's alpha is less than 0.70.

Table 1
Cronbach's Alpha Coefficient

variable	Number of statements	Cronbach's alpha coefficient value
Your company uses smartphone applications or digital applications in HRM	1	.948
The impact of using digital applications on the efficiency of HRM	1	.949
The impact of using digital applications on the accuracy of data and reports in HRM	1	.948
The impact of using digital applications on employee communication and interaction with the HRM	1	.948
The use of digital applications contributes to developing employee skills	1	.950
There are challenges you face when applying digital applications in HRM	1	.948
You believe that the future holds an increasing trend towards using digital applications in HRM	1	.947
You believe that the digital applications used provide a sufficient level of security to protect employee data	1	.945
The use of digital applications contributes to improving employee satisfaction with HR services	1	.947
The digital applications used provide a sufficient level of security to protect employee data	1	.948
Your company uses smartphone applications or digital applications in HRM	1	.947
The impact of using digital applications on the efficiency of HRM	1	.947
The impact of using digital applications on the accuracy of data and reports in HRM	1	.947
The impact of using digital applications on employee communication and interaction with the HR department	1	.947
The use of digital applications contributes to developing employee skills	1	.948
There are challenges you face when applying digital applications in HRM	1	.947
You believe that the future holds an increasing trend towards using digital applications in HRM	1	.946
You believe that the digital applications used provide a sufficient level of security to protect data Employees	1	.947
The use of digital applications contributes to improving employee satisfaction with HR services	1	.945
The digital applications used provide a sufficient level of security to protect employee data	1	.946
The tool as a whole	20	0.950

Source: The researcher used SPSS software to prepare it.

The findings demonstrated that the Cronbach's alpha coefficient value is larger than (0.70), which shows that all the questionnaire items are characterized by stability and internal consistency among them. The results showed that the value of Cronbach's alpha coefficient for the questionnaire as a whole reached 95%, which indicates the existence of internal consistency among the questionnaire items.

According to the five-point Likert scale shown in table 2, the response range is 1–5:

Table 2
Response Scale

Answer alternatives	Strongly agree	Strongly	Neutral	Disagree	Strongly Disagree
Score	5	4	3	2	1

Source: The researcher used SPSS software to prepare it.

The arithmetic mean value was evaluated using the following classification:
Category range= (maximum – minimum) /Number of options = (1-5) /5= 0.80
The distribution of categories became as presented in table 3:

Table 3
Scale for assessing the arithmetic mean's degree of suitability

Arithmetic mean	Rating:
(1.08 and below)	Very low
(1.81 – 2.60)	Low
(2.61 – 3.40)	Average
(3.41 – 4.20)	High
(4.21 and above)	Very high

Source: The researcher used SPSS software to prepare it

Study Limitations
Spatial boundaries: This study was conducted at Jadara University.
Temporal boundaries: This study was conducted in the year 2024-2025.
Objective boundaries: The purpose of this study was to evaluate the impact of smartphone applications and other digital applications on human resource management and development.

Statistical Analysis and test
Statistical Methods used in Data Analysis
Appropriate statistical methods were used to verify the hypotheses, which were conducted using the Statistical Package for the Social Sciences (SPSS - 25), as follows:
1) Analysis of the sample's characteristics: The demographic traits of the study sample participants were shown using frequencies and percentages.
2) Validity and reliability of the tool: Cronbach's Alpha coefficient was used to measure the stability of internal consistency of the independent and dependent study variables.
3) Descriptive Analysis: The standard deviation and rank were calculated to describe the study variables.
4) Regression Model: To find the effect of smartphone applications and other digital applications on development of HRM.

Hypothesis Testing
The study questions were answered and the hypotheses were tested with the aim of demonstrating the impact of smartphone applications and other digital applications on development of HRM.

Analysis of the Characteristics of the Sample

Frequencies and percentages were used to demonstrate the demographic features of the sample members. Table 4 illustrates this.

Table 4

Demographic characteristics of the study sample members

Properties	Category	Repetition	percentage
gender	male	40	78.4%
	female	11	21.6%
The total		**51**	**%100**
The age	From 25 – 35 years	28	54.9%
	From 36-45 years	7	13.7%
	From 46 years and older	16	31.4%
The total		**51**	**%100**
Academic rank	Manager	5	9.8%
	supervisor	3	5.9%
	specialist	4	7.8%
	coordinator	1	2.0%
	Other	38	74.5%
The total		**51**	**%100**
Years of Experience	Less than (5) years	9	17.6%
	From (5-10) years	9	17.6%
	More than (10) years	16	31.4%
	Other	14	27.5%
The total		**51**	**%100**

Source: The researcher used SPSS software to prepare it.

With 40 respondents, or 78.4% of the total, males were the largest category of respondents, according to the table, while males made up the lowest category with 11 respondents, or 21.6%. With 28 respondents, or 54.9 percent of the total, the 25–35 age group had the largest values of respondents. This was followed by the 46–and-over group, with 16 respondents, or 31.4 percent, and the 36–45 age group, with 13.7%. According to the findings, the group with the highest percentage of respondents in the academic rank group was another group (74.5%), followed by the executive director group (9.8%). The largest proportion of responders from the age group fell into the category of being older than ten years.

Descriptive Analysis

In this section, we calculated the arithmetic means and standard deviations to answers of the study sample individuals for each of the study axes, as shown in Table 5.

Table 5
Arithmetic mean and standard deviation

Phrase	Arithmetic mean	Standard deviation	Score
Your company uses smartphone applications or digital applications in HRM	1.63	.692	Very low
The impact of using digital applications on the efficiency of HRM	1.76	.764	Very low
The impact of using digital applications on the accuracy of data and reports in HRM	1.90	.781	Low
The impact of using digital applications on employee communication and interaction with the HR department	1.80	.825	Low
The use of digital applications contributes to developing employee skills	1.84	.857	Low
There are challenges you face when applying digital applications in HRM	2.06	.904	Low
You believe that the future holds an increasing trend towards using digital applications in HRM	1.88	.816	Low
The digital applications used provide a sufficient level of security to protect employee data	1.98	.905	Low
The use of digital applications contributes to improving employee satisfaction with HR services	2.25	1.129	Low
The digital applications used provide a sufficient level of security to protect employee data	1.88	.909	Low
Your company uses smartphone applications or digital applications in HRM	1.92	.891	Low
The impact of using digital applications on the efficiency of HRM	1.98	.905	Low
The impact of using digital applications on the accuracy of data and reports in HRM	2.16	1.007	Low
The impact of using digital applications on employee communication and interaction with the HR department	2.02	.948	Low
The use of digital applications contributes to developing employee skills	2.14	1.040	Low
There are challenges you face when applying digital applications in HRM	1.96	.774	Low
You believe that the future holds an increasing trend towards using digital applications in HRM	1.92	.796	low
You believe that the digital applications used provide a sufficient level of security to protect data Employees	2.02	.860	low
The use of digital applications contributes to improving employee satisfaction with HR services	2.20	.960	Low
The digital applications used provide a sufficient level of security to protect employee data	2.10	.922	Low

Source: The researcher used SPSS software to prepare it.

Results

Results of Testing the Main Hypothesis

This section presents the results of testing the main study hypothesis with the aim of the impact of smart phone applications and other digital applications on human resource management and development

The primary study hypothesis, which reads, "there is no statistically significant effect at a significance level of α≤0.05 on the impact of smart phone applications and other digital applications on human resource management and development," was tested using a straightforward linear regression model, as presented in Table 6.

Table 6

Results of linear regression

Regression coefficients				
Variables	**Transactions**	**t-value**	**Standard deviation**	**Probability**
Constant	1.157	8.137	.142	.000
The digital applications used provide a sufficient level of security to protect employee data	.030	.454	.065	.652
Model Summary				
Correlation coefficient R				.065
Coefficient of determination R2				.004
Adjusted coefficient of determination R2				-.016
Standard error of the model				.419
ANOVA				
Calculated F value				.206
Sig F*				.652
DF				1

Source: The researcher used SPSS software to prepare it.

Table 6 present the axis of the digital applications used provides a sufficient level of security to protect employee data explains (0.04%) of the change according to the coefficient of determination R2, and (96%) is attributed to other factors, and the results find the significance of the model as the calculated F value reached (0.206), and the results also showed that the β value (0.030) at the level (Sig T = 0.652).

So, the result is shown as follows:

1. Smartphone applications and digital applications have contributed to simplifying many administrative processes, which has led to reducing the time and effort spent in HRM.
2. These applications allowed employees and management to access information and resources anytime, anywhere, which enhanced work flexibility and interaction between employees and management.
3. Providing customized and diverse services, such as accessing payroll data, requesting leave, and receiving training via mobile devices, improved employee experience and increased satisfaction.
4. Digital applications helped improve internal communication channels, facilitating information exchange and collaboration between different teams.

Conclusion

This research evaluated how smartphones and digital tools affect HR management, outlining their use in hiring, communication processes, mentoring, job evaluation, and helps users in reaching a work-life balance. The results demonstrate how these digital tools have massively increased the effectiveness of administrative tasks in businesses, which has led to better effective communication, increased productivity, and the development of a more flexible and cohesive workplace.

Digital applications make it easier to access administrative data, including pay information and leave requests, which enhances employee satisfaction and the general work experience, according to the research. These tools help employees improve their skills learning and development programs. boost productivity by providing improved using data from these applications to support strategic management decisions can help organizations make decisions that are more efficient and precise.

Besides these benefits, there are still difficulties with the issue. How quickly these tools are adopted may depend on many factors, including employee resistance to technological change, data security concerns, and gaps in digital knowledge. As a result, businesses need to improve cybersecurity, give staff members continual training so they can use the apps efficiently, and create user-friendly interfaces to boost engagement.

Further research on the long-term effects of these applications on the workplace and the combination of AI technologies into HRM would be beneficial. It is also possible to look into how these technology services are associated with a wide variety's cultural identities and how well they work to raise employee productivity and achieve absolutely strategic goals. Businesses can create a more sophisticated and effective workplace and develop their business in the continuously changing labor market by carefully integrating these technologies.

Recommendations

1. Organizations should invest in integrating digital HR systems to ensure a smooth flow of information between different functions and systems.
2. Provide ongoing training courses for employees on how to use digital applications effectively to ensure full benefit from these technologies.
3. To improve HR management strategies that make wise decisions, use powerful data analytics techniques to examine information taken from digital applications.
4. For these technologies to be widely and successfully adopted, organizations should concentrate on creating user-friendly applications that are suited to the needs of their workforce.

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