

Midocean University

College of Management

Department of Management



**The Role of Electronic Human Resource Management on
Workforce Efficiency in Banks in Riyadh City**

دور إدارة الموارد البشرية الإلكترونية في كفاءة القوى العاملة في البنوك في مدينة
الرياض

Fahad Ali Alhammad

221001256

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Faculty of Management - Midocean University

Supervisor

Dr. Faisal Abdulhamed Muhammad Hassan

Faculty Member- Faculty of Management- Midocean University

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Table of Contents

Abstract (in English)	5
Abstract (in Arabic)	6
1. Chapter 1: Introduction.....	7
.1.1 Overview and Background	8
1.2. Research Problems.....	9
1.2.1. Theoretical Gap.....	10
1.2.2. Empirical Gap	10
1.3. Research Significance.....	11
1.3.1. Theoretical Significance	11
1.3.2. Empirical Significance.....	12
1.4. Research Questions.....	13
1.5. Research Objectives.....	14
1.6. Research Hypothesis.....	15
1.7. Research Model	16
1.8. Empirical Study	16
1.9. Project Structure	17
2. Chapter 2: Literature Review.....	18
2.1. Introduction	19
2.2. Related Studies	21
2.2.1. First Variable: E-HRM	21
2.2.2. Second Variable: Workforce Efficiency.....	22
2.3. Conclusion	24
3. Chapter 3: Research Methodology	25
3.1. Introduction	26
3.2. Operational Definitions for Research Variables.....	26
3.2.1. E-HRM (Independent Variable)	26
3.2.2. Workforce Efficiency (Dependent Variable)	27
3.3. Research Design (Research Onion).....	27
3.4. Research Population & Sampling Methods and Techniques	28

3.4.1.	Research Population	28
3.4.2.	Research Sample.....	28
3.5.	Data Collection Method.....	28
3.5.1.	The Independent Variable (E-HRM)	29
3.5.2.	The Dependent Variable (Workforce Efficiency)	29
3.6.	Types of Data.....	30
3.6.1.	Primary Data	30
3.6.2.	Secondary Data	30
3.7.	Data Analysis Methods & Procedures.....	30
3.8.	Conclusion	31
4	Chapter 4: Statistical analysis and discussion of results .	32
4.1.	Introduction	33
4.2.	Sample Description.....	33
4.3.	Reliability and Validity of the Questionnaire	34
4.3.1.	Reliability Analysis.....	34
4.5.	Hypothesis Testing and Results Discussion	36
4.6.	Comparison with Previous Studies.....	37
4.7.	Conclusion	40
5.	Chapter 5: Research Limitations, Recommendations, and	
Conclusion		41
5.1.	Research Limitations	42
5.2.	Recommendations.....	43
5.3.	Conclusion	44
6.	References	45
7.	Appendices	50

List of Tables

Table 1: The Instrument of The Independent Variable (E-HRM). Source: The Researcher. (2025)	29
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Table 2: The Instrument of The Dependent Variable (Workforce Efficiency). Source: The Researcher. (2025).....	29
Table 3: The Statistics Describe the Characteristics of The Sample. Source: The Researcher. (2025)	33
Table 4: The Survey Items of E-HRM (Independent Variable). Source: The Researcher. (2025)	35
Table 5: The Survey Items of Workforce Efficiency (Dependent Variable). Source: The Researcher. (2025).....	35

Table of Figures

Figure 1: Research Model. Source: The Researcher. (2025).....	16
Figure 2: Project Structure. Source: The Researcher. (2025).....	17
Figure 3: Research Onion. Source: The Researcher. (2025)	27

Abstract (in English)

This study explores the pivotal role of Electronic Human Resource Management (e-HRM) in enhancing work efficiency within banks in Riyadh City. In today's dynamic business environment, the integration of technology into HR practices is crucial for improving organizational performance. The objective of this research is to examine how e-HRM systems influence work efficiency from the perspective of bank employees and to identify the associated challenges and concerns in their implementation.

A structured survey was conducted to gather data from employees across various banks in Riyadh City. The survey focused on two core dimensions: employees' perceptions of e-HRM's impact on work efficiency, and the challenges encountered during implementation. Through this approach, the study aims to offer a comprehensive understanding of the relationship between e-HRM and work efficiency within the banking sector.

The findings indicate a generally positive perception among bank employees regarding the role of e-HRM in enhancing efficiency. Respondents recognized that e-HRM systems streamline HR functions such as recruitment, training, performance management, and communication. Furthermore, the study highlights a positive correlation between favorable employee perceptions of e-HRM and perceived improvements in work efficiency.

Abstract (in Arabic)

تتناول هذه الدراسة الدور المحوري لإدارة الموارد البشرية الإلكترونية (e-HRM) في تعزيز كفاءة العمل داخل البنوك في مدينة الرياض. في ظل بيئة الأعمال المعاصرة المتسارعة، أصبح دمج التكنولوجيا في ممارسات الموارد البشرية أمرًا ضروريًا لتحسين الأداء المؤسسي. يهدف هذا البحث إلى دراسة تأثير أنظمة إدارة الموارد البشرية الإلكترونية على كفاءة العمل من وجهة نظر موظفي البنوك، وتحديد التحديات والمخاوف المرتبطة بتطبيقها.

تم إجراء استبيان منظم لجمع البيانات من موظفي البنوك في مدينة الرياض. ركز الاستبيان على بُعدين رئيسيين: تصورات الموظفين حول تأثير إدارة الموارد البشرية الإلكترونية على كفاءة العمل، والتحديات التي تواجهها أثناء التنفيذ. ومن خلال هذا النهج، تسعى الدراسة إلى تقديم فهم شامل للعلاقة بين إدارة الموارد البشرية الإلكترونية وكفاءة العمل في القطاع المصرفي.

أظهرت نتائج الدراسة وجود انطباعات إيجابية عامة لدى موظفي البنوك تجاه دور إدارة الموارد البشرية الإلكترونية في تعزيز الكفاءة. وقد أقر المشاركون بأن هذه الأنظمة تساهم في تبسيط وظائف الموارد البشرية مثل التوظيف، والتدريب، وإدارة الأداء، والتواصل. كما أظهرت الدراسة وجود علاقة إيجابية بين التصورات الإيجابية للموظفين تجاه إدارة الموارد البشرية الإلكترونية وتحسين الكفاءة المدركة لديهم.

1. Chapter 1: Introduction

1.1. Overview and Background

Electronic human resource management (e-HRM) refers to the use of technology to manage various aspects of human resources (HR) in an organization (Srivastava 2010). This includes recruitment, employee onboarding, performance management, training and development, payroll, and other HR-related processes. The use of e-HRM has become increasingly popular in recent years, as organizations seek to streamline their HR processes and improve workforce efficiency. According to various studies, Electronic Human Resource Management (e-HRM) refers to the use of technology in managing different aspects of HR in an organization, including recruitment, onboarding, performance management, training, payroll, and other HR-related processes (Kavanagh et al., 2012; Ruel et al., 2007; Tan et al., 2010). Over the years, e-HRM has become increasingly popular as organizations seek to streamline their HR processes and improve workforce efficiency.

One of the key benefits of e-HRM is that it enables HR professionals to automate many of the time-consuming administrative tasks associated with managing a workforce, freeing up HR staff to focus on more strategic tasks related to talent management and development (Ruel et al., 2007). Additionally, e-HRM can improve the accuracy and consistency of HR data, leading to more informed decisions about the workforce (Kavanagh et al., 2012).

Like in other countries, the bank is the key player in the economic growth in Saudi Arabia (ALZYADAT et al., 2021). In the banking sector, human resource management (HRM) practice is one of the most influential factors for profitable and proficient banking operations, creation of new banking products, and provision of better services to clients. Through strategic HRM practices, employees achieve a specific set of competencies that

differentiates banks, and leads to the achievement of competitive advantages in the banking industry. In Bangladesh, the banking services do not differ much from each other. Banks therefore need to create skilled and knowledgeable employees to satisfy their existing clients and to attract new clients, which results in profitable banking. The Impact of HRM practices on bank performance is too complex to be measured. To rationalize the necessary investments on human resource department, it is the contribution of HRM practice to the organizational performance of banks must be examined (Masum et al.,2016).

1.2. Research Problems

The integration of technology in various industries has spurred transformative changes in organizational processes, and the banking sector in Riyadh City is no exception. With an emphasis on optimizing efficiency and staying competitive in a rapidly evolving landscape, banks have increasingly turned to Electronic Human Resources Management (e-HRM) systems. These systems hold the promise of streamlining HR processes, from recruitment and training to performance evaluation and record management, thereby potentially revolutionizing work efficiency within these institutions. However, amid this pursuit of heightened efficiency through e-HRM adoption, a critical problem arises that necessitates thorough examination: the extent to which e-HRM systems genuinely deliver on their promise of elevating work efficiency within banks in Riyadh City. Despite growing enthusiasm and investment in these technologies, there exists a gap in understanding the precise impact of e-HRM implementation on the overall work efficiency of banks in the region. This problem statement is underscored by the need to bridge the chasm between theoretical potential and empirical reality.

1.2.1.Theoretical Gap

While the theoretical underpinnings and anticipated benefits of e-HRM systems are well-documented, particularly in general terms, there is a theoretical gap in applying these frameworks to the specific context of Riyadh's banking sector. The literature extensively discusses the positive outcomes of e-HRM systems, such as enhanced efficiency and improved organizational processes. However, these theories are not sufficiently tailored to address the unique characteristics and challenges of the banking sector in Riyadh City. Theoretical models often present an idealized view of e-HRM, but do not adequately account for the particular demands and constraints of local banking institutions, including regulatory requirements and customer service complexities. Therefore, there is a need to investigate whether these well-established theoretical benefits hold true in this specific context.

1.2.2.Empirical Gap

Further compounding the issue is the critical empirical gap that exists in understanding the actual outcomes of e-HRM adoption within the banking sector in Riyadh. Despite the growing enthusiasm surrounding the implementation of e-HRM systems, the empirical evidence on their effectiveness in improving work efficiency in this particular context remains sparse. The current body of literature lacks sufficient research that evaluates the real-world impact of e-HRM systems on operational efficiency within Riyadh's banking institutions. This empirical gap creates uncertainty regarding whether the adoption of e-HRM technologies truly leads to the expected improvements in work efficiency. The banking sector in Riyadh has distinct operational characteristics, regulatory demands, and customer service priorities, all of which may influence the effectiveness of e-HRM systems. Without empirical studies that specifically examine the outcomes

in this sector, it is difficult to determine whether the implementation of e-HRM systems aligns with the anticipated improvements in work efficiency.

Thus, addressing both the theoretical gap and the critical empirical gap is essential for understanding the true impact of e-HRM systems on work efficiency within banks in Riyadh City. These gaps must be bridged to provide clarity on whether e-HRM systems live up to their theoretical promise and, more importantly, whether they deliver measurable benefits in the specific context of Riyadh's banking industry.

According to Above, the main research question is:

" What is the role of electronic human resource management in workforce efficiency in banks?"

1.3. Research Significance

The study investigating the role of Electronic Human Resources Management (e-HRM) in enhancing work efficiency within banks in Riyadh City holds significant importance due to its potential to drive informed decision-making, optimize resource allocation, and contribute to the advancement of the banking sector. The following sections outline the key aspects that underscore the research's significance.

1.3.1.Theoretical Significance

This study contributes to the existing body of knowledge by addressing a critical gap in the theoretical understanding of e-HRM systems and their impact on work efficiency within the banking sector. While prior research has established the theoretical foundations of e-HRM in various organizational settings, there remains a need to contextualize these theories within the specific operational and regulatory framework of banks in Riyadh

City. By examining the link between e-HRM adoption and work efficiency, this research refines existing theoretical models and enhances their applicability to the banking industry.

Furthermore, the findings of this study may provide a platform for future academic discourse on the interplay between technology, human resources, and efficiency. The intricate relationship between digital transformation and organizational performance is a multifaceted area that extends beyond banking. Other industries facing similar challenges might find insights from this research applicable to their contexts, thereby contributing to broader theoretical advancements in HR technology implementation (Cherif, 2020).

1.3.2. Empirical Significance

Beyond theoretical contributions, this study holds empirical significance in assessing the real-world implications of e-HRM adoption in Riyadh City's banking sector. As banks increasingly integrate technology into their HR functions, understanding the tangible impact of e-HRM systems on work efficiency is crucial for informed decision-making. The study's findings can guide banks in strategically allocating resources, ensuring that their investments in e-HRM yield measurable efficiency gains.

Moreover, the research carries significant implications for the workforce. e-HRM adoption has the potential to reshape HR processes, directly influencing the daily experiences of employees. By identifying the benefits, challenges, and areas for improvement, this study can contribute to fostering a more productive and satisfying work environment. Reduced administrative burdens, enhanced access to HR services, and opportunities for skill development may lead to improved job satisfaction and higher retention rates among banking professionals.

Additionally, the efficiency of banks plays a crucial role in strengthening the broader financial sector in Riyadh City. Given the city's economic reliance on a robust banking industry, accurate knowledge regarding the effectiveness of e-HRM systems is essential for maintaining a competitive edge. Misalignment between technology adoption and operational efficiency could result in resource wastage and diminished productivity. By providing empirical evidence on the relationship between e-HRM and work efficiency, this study equips banks with the necessary insights to optimize their HR strategies and enhance their overall performance (Alraahle et al., 2014).

In summary, the significance of this research extends across both theoretical and empirical dimensions. It contributes to the refinement of theoretical frameworks, offers practical insights for banking institutions and employees, and strengthens the banking sector's ability to leverage digital transformation effectively. Ultimately, the findings of this study have the potential to shape the trajectory of technological integration, work processes, and efficiency-enhancing practices within the evolving banking landscape of Riyadh City.

1.4. Research Questions

2. What are the main e-HRM practices implemented in banks in Riyadh?
3. How do e-HRM systems impact employee performance and efficiency in banks in Riyadh?
4. What challenges and obstacles are faced during the implementation of e-HRM systems in banks in Riyadh?
5. How do banks in Riyadh ensure data security and privacy when using e-HRM systems?
6. What strategies can enhance the successful adoption and utilization of e-HRM systems in banks in Riyadh?

1.5. Research Objectives

This study aims to achieve the following research objectives regarding the role of e-HRM in workforce efficiency:

- To examine the key factors influencing the adoption and effectiveness of e-HRM systems in organizations, with a focus on best practices for successful implementation.
- To analyze the impact of e-HRM systems on core HR processes, including recruitment, training, performance evaluation, and employee record management.
- To assess the effects of e-HRM on productivity, employee satisfaction, turnover rates, and overall organizational performance.
- To identify the challenges and risks associated with e-HRM adoption and propose strategies to mitigate these challenges.
- To investigate the influence of contextual factors (e.g., organizational size, industry type, and geographic location) on the effectiveness of e-HRM systems.
- To explore the ethical implications of e-HRM, particularly concerning employee privacy, data security, and the responsible use of personal information.
- To examine the potential for integrating e-HRM with emerging technologies such as artificial intelligence and machine learning to enhance workforce efficiency.
- To develop training programs and resources that equip HR professionals with the necessary skills to optimize e-HRM utilization.
- To assess the role of e-HRM in talent management, employee development, and succession planning.

- To propose evidence-based guidelines and recommendations for organizations seeking to implement e-HRM to enhance workforce efficiency.
- To contribute to the academic and professional discourse on the role of digital transformation in human resource management.

Subsequently, an intricate analysis will be undertaken to elucidate the precise impact of e-HRM systems on critical HR functions, ensuring that organizations can leverage these technologies for improved efficiency (Johnson et al., 2019).

1.6. Research Hypothesis

- **Hypothesis 1:** Organizations with high levels of adoption and effective use of e-HRM systems will have greater workforce efficiency compared to organizations with low levels of adoption and ineffective use of these systems.
- **Hypothesis 2:** The use of e-HRM systems will lead to improvements in HR processes, such as recruitment, onboarding, performance management, and training and development, resulting in increased productivity and better workforce efficiency.
- **Hypothesis 3:** Employee satisfaction and retention rates will be higher in organizations that effectively use e-HRM systems, as these systems provide employees with greater transparency and accessibility to HR-related information and resources.
- **Hypothesis 4:** The effectiveness of e-HRM systems will be influenced by contextual factors such as organizational size, industry, and location, with systems being more effective in larger and more technologically advanced organizations.
- **Hypothesis 5:** The use of e-HRM systems may raise ethical concerns related to employee privacy and data security, which may

negatively impact workforce efficiency if not effectively addressed.

1.7. Research Model

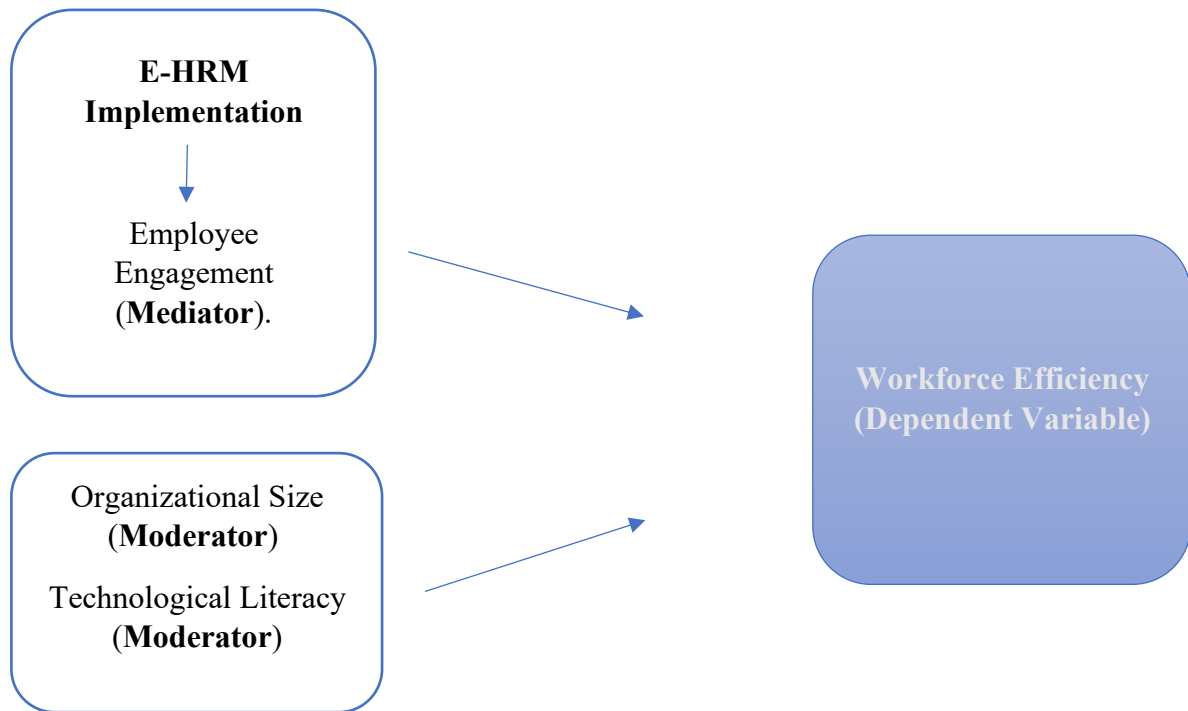


Figure 1: Research Model. Source: The Researcher. (2025).

1.8. Empirical Study

A study will be conducted on selected banks in Riyadh City to examine how the implementation of Electronic Human Resources Management (e-HRM) systems affects work efficiency. The study will employ a mixed methods approach, integrating quantitative data from surveys on employee perceptions and work efficiency metrics. This methodology will assess the impact of e-HRM on various HR functions, such as recruitment efficiency, employee engagement, and performance evaluation.

By analyzing pre- and post-e-HRM implementation data, the study aims to isolate the direct effects of e-HRM on operational efficiency within these

banks. The expected outcome is to demonstrate a positive correlation between e-HRM adoption and enhanced work efficiency.

The findings from this study will serve as a valuable resource for banks in Riyadh City to optimize their HR processes and enhance overall performance. Ultimately, this research aspires to contribute to the advancement of HR technology adoption in the banking sector, ensuring that institutions can leverage e-HRM to achieve higher productivity, streamlined operations, and improved employee satisfaction.

1.9. Project Structure



Figure 2: Project Structure. Source: The Researcher. (2025)

2. Chapter 2: Literature Review

2.1. Introduction

The Integration of Electronic Human Resources Management (e-HRM) systems has emerged as a strategic response to the evolving demands of the modern business landscape. This literature review focuses on investigating the role of e-HRM in enhancing work efficiency specifically within the banking sector of Riyadh City .

The human resource management function has changed dramatically over time evolving Walker (2001) A.J. (2001). Web-Based Human Resources: The Technologies and Trends That Are Transforming HR. New Delhi: Tata McGraw Hill. If HR technology is to be considered successful, it must change the work performed by the Human Resources Personnel by dramatically improving their level of service, allowing more time for work of higher value and reducing their costs. Many systems have been implemented by cutting HR staff, outsourcing and imposing new technology.

According to Prasad (2003) Human Resource Management. New Delhi: Sultan Chand & Sons, the concept of computerized HRIS is derived as an organized method of providing information about human resources, their functioning, external factors relevant to managing human resources. Large organizations generally install e-HR because it enables them to collect, store, process and manipulate large amount of data inputs, reduce costs of maintaining human resource data and provide accurate information about human resources anytime and anywhere. (Chansoriya and Shukla., 2019) In the view of Armstrong (2006).

A Handbook of Human Resource Management Practice. New Delhi: Kogan e-HR provides the Information required to manage HR processes. These may be core employee database and payroll systems but can be extended to Include such systems as recruitment, e-learning, performance management and reward. The system may be web-based, enabling access to remote or

online and at any time. The information provided by the e-HR process can be communicated across organizations. Kettley and Reiley (2003) P. (2003).

E-HR: An introduction. IES Report states that a computerized human resource information system consists of "a fully integrated, organization wide-network of HR-related data, information, services, databases, tools and transactions. Technology has only recently developed in a way that enables e-HR to make its mark, especially the introduction of corporate intranets and web-enabled HRIS. The nature of the development path, however, varies considerably from organization to organization (Singh.,2013) (Nivlouei.,2014).

E-HRM can be characterized as transfer of HR system to computer environment by using communication technologies. E-HRM idea is communicated as implementation of the HRM system using the intranet, Internet, and networks and directly using these channels (Ruel et al., 2004). The majority of HRIS users are HR staff. The goal of HRMS is to "improve business processes of the HR department and achieve better results in business processes". E-HRM is designed for personnel and staff outside HR department and managers and employees of the organization (Ruel et al., 2004). Currently, different organizations prefer to complete their hiring process through electronic channels by using the concept of the e-HRM instead of using traditional means because It saves time and cost of organizations. Previously recruitment process, when chain links are tracked together, the e-recruitment process synchronizes the connections of mid-level efforts to the Internet applications of different companies, making e-commerce functions particularly specific. Training and development are an Initiative and effort aimed at improving "current and future employees in the organization" by enhancing job skills.

Despite these faults, the benefits of e-learning and development should not be overlooked. It tends to be "seen that if changing structure of education' is well developed alongside technological growths, companies of future can't be indifferent to e-learning (Rahman & Aydin, 2019). Workplace analysis is a process in which job analyst identifies tasks in different places in organization and people characteristics who perform them (Dessler, 2005). Through, the job analysis, organization develops job descriptions and job specifications and, as a result, leads to staff planning and budgeting.

Competence is predetermined according to nature of job and this set of "competencies is placed through a system that automatically leads to the importance" of the job. Therefore, the job description of each job will be updated by program manager or HR department. An employee can easily see their job description in the system and track their progress. HRP is both quantitative and qualitative to ensure that the organization" is doing the right job at right time (Armstrong, 2003).

Therefore, employee communication is an integral part of personnel management functions. In this connection, this differs from the general and daily routine functions of other departments, as this communication requires transparency, generosity, concreteness, clarity, and all forms of the perfection to disseminate truthful and relevant information to employees while ensuring that the recipient receives and understands the content correctly (Sohail et al,2020).

2.2. Related Studies

2.2.1.First Variable: E-HRM

1. Seyed Mehdi Mousavi Davoudi; Kiarash Fartash (2012) – Electronic Human Resource Management: New Avenues Which Leads to Organizational Success.

Objective: The study seeks to highlight the crucial role of Electronic Human Resource Management (EHRM) in organizations

Contents:

- A review of the relevant literature on E-HRM
- Describing the objectives of E-HRM in organizations
- Clarification of three types of E-HRM
- Discussion on the applications and benefits of E-HRM
- Identification of factors contributing to the successful implementation of E-HRM in HR practices
- Proposing a theoretical model to emphasize the importance of integrating HR practices with information technology, aiming to achieve superior organizational outcomes.

2.2.2.Second Variable: Workforce Efficiency

1. Ya-Fen et al (2009) - Investigated and Explored Human Resource Practices and Their Influence on Organization Performance

Objective: To examine the impact of HRM practices on organizational performance.

Contents:

- Data collected via questionnaires from 129 companies in the Taiwanese electronic industry and 112 branches in China
- Utilized the Analytical Hierarchical process/Data Envelopment Analysis (AHP/DEA) model to compare HRM practices' impact across cultures.
- Key finding indicates the necessity of employee participation in company activities, emphasizing the varied relationship between organizational performance and cultural context.

2. Seonghee et al (2006) – Investigated the Relationship Between the Use of 12 HRM Practices and Organizational Performance

Objective: To understand how 12 HRM practices relate to organizational performance.

Contents:

- The study surveyed lodging and restaurant companies in the USA, drawing samples from the compact Disclosure database, encompassing 219 hotels and restaurants.
- Regression analysis results indicated that companies that implement these HRM practices are likely to see decreased turnover rates, particularly among non-managerial employees.

3. Gaafar Mohamed Abdalkrim (2012) – Impact of Human Resource Practices on Organizational Performance in Banking Sector in Saudi Arabia

Objective: To gauge the effect of HR practices on organizational performance, specifically within the Saudi Arabian banking sector

Contents:

- Focused on seven key HRM practices: training and development, performance appraisal, empowerment, compensation, job rotation, participation in decision-making, and the selection system.
- Data collected via questionnaires, analyzed through descriptive statistics and correlation.

- Results confirm a positive correlation between all seven HRM practices and organizational performance in the Saudi Arabian banking sector, suggesting enhancements in these areas could lead to improved performance.

2.3. Conclusion

This chapter has provided an extensive review of the existing literature on Electronic Human Resource Management (e-HRM) and its impact on work efficiency, particularly in the banking sector of Riyadh City. The integration of e-HRM has been highlighted as a transformative approach to modern HR practices, enabling organizations to streamline operations, reduce costs, and enhance overall performance. Various studies have underscored the significance of technology-driven HRM systems in facilitating data management, employee engagement, and decision-making processes.

Additionally, the literature has examined the relationship between HRM practices and organizational performance, emphasizing the role of digital solutions in optimizing workforce efficiency. Key findings from previous research indicate that e-HRM contributes to improved recruitment processes, employee training, performance evaluation, and communication, ultimately leading to increased productivity and competitiveness. However, the successful implementation of e-HRM requires strategic alignment with organizational goals, proper training for HR personnel, and a supportive technological infrastructure.

3. Chapter 3: Research Methodology

3.1. Introduction

The research aims to delve into the intricate relationship between e-HRM and work efficiency within the banks of Riyadh City. By investigating the impact of e-HRM on various aspects of HR operations, such as recruitment, employee record management, task allocation, and performance evaluations, this study seeks to uncover the extent to which e-HRM can enhance overall work efficiency.

This section explains the methodology applied in this study to answer the research questions and test the hypotheses. The methodology is carefully structured to ensure consistency, reliability, and validity throughout the research process. The section includes the operational definitions for the research variables, the chosen research design, population, sampling methods, data collection techniques, and analysis procedures.

3.2. Operational Definitions for Research Variables

Operational definitions are essential for clearly defining the variables being measured in the study. These definitions specify how each variable is observed, measured, or manipulated, ensuring that the study is consistent and valid.

3.2.1. E-HRM (Independent Variable)

Operational Definition: E-HRM refers to the use of digital tools and technologies that facilitate various human resource functions, including recruitment, performance management, payroll processing, employee communication, and training management. By defining E-HRM in this way, the study captures the full scope of digital HR practices being examined and their impact on organizational processes.

3.2.2. Workforce Efficiency (Dependent Variable)

Operational Definition: Workforce efficiency is measured by assessing the impact of E-HRM systems on reducing administrative workload, improving employee productivity, optimizing time management, and enhancing job satisfaction. This definition considers how E-HRM systems help streamline HR processes, leading to both operational and psychological benefits for employees.

3.3. Research Design (Research Onion)

The research methodology follows the "research onion" model and covers key methodological aspects:

- **Research Philosophy:** Positivist.
- **Research Approach:** Deductive.
- **Research Strategy:** Survey.
- **Research Choice:** Quantitative.
- **Time Horizon:** Cross-sectional.
- **Data Collection and Analysis Techniques:** Statistical analysis of survey results.

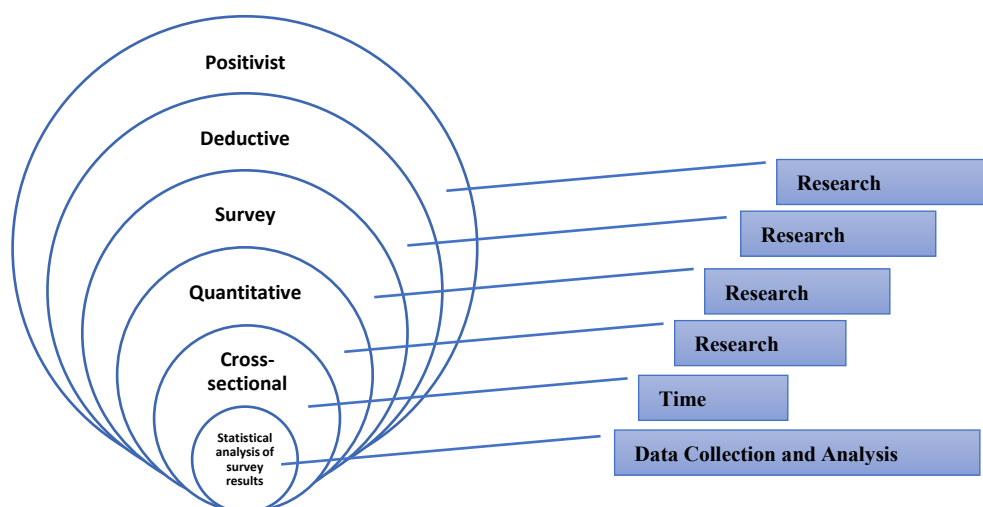


Figure 3: Research Onion. Source: The Researcher. (2025)

3.4. Research Population & Sampling Methods and Techniques

3.4.1. Research Population

The target population for this study consists of employees from organizations that have adopted E-HRM systems. This includes HR professionals, managers, and employees actively involved with digital HR tools. The diversity within this group is essential for gaining a comprehensive understanding of the effects of E-HRM systems across different organizational roles.

3.4.2. Research Sample

The sample size was calculated using the Krejcie & Morgan (1970) table to ensure statistical validity and reliability. A diverse sample of employees from various departments (e.g., HR, IT, operations, and marketing) was selected to capture varied experiences and perspectives on the use of E-HRM systems.

3.4.3. Sampling Method & Techniques

A **probability sampling** method, specifically **simple random sampling**, was used. This technique ensures that every individual within the population has an equal chance of being selected, minimizing selection bias and enhancing the representativeness of the sample.

3.5. Data Collection Method

Data were collected through a **structured questionnaire** designed to assess the impact of E-HRM on workforce efficiency. The questionnaire included both quantitative and qualitative items to gather comprehensive data.

3.5.1. The Independent Variable (E-HRM)

The questionnaire used to measure E-HRM was adapted from previous studies on digital HR tools. It consists of five items that cover various dimensions of E-HRM, including recruitment efficiency, performance evaluation, records management, and communication.

Variable	Dimensions	Number of Items
E-HRM	Efficiency, Recruitment, Records, Evaluation, Communication	5

Table 1: The Instrument of The Independent Variable (E-HRM). Source: The Researcher. (2025)

3.5.2.The Dependent Variable (Workforce Efficiency)

Workforce efficiency was assessed using three items that measure process improvement, work-life balance, and reduction in administrative tasks. Like E-HRM, a **5-point Likert scale** was used for these items.

Variable	Dimensions	Number of Items
Workforce Efficiency	Process Improvement, Work-Life Balance, Task Reduction	3

Table 2: The Instrument of The Dependent Variable (Workforce Efficiency). Source: The Researcher. (2025)

3.6. Types of Data

3.6.1.Primary Data

Primary data were collected through a survey administered to employees actively using E-HRM systems. This data provides direct insights into the relationship between E-HRM adoption and workforce efficiency, making it a crucial part of the study.

3.6.2.Secondary Data

Secondary data were gathered from academic journals, industry reports, and other scholarly works. These sources helped provide additional context and support for the primary data collected, offering a broader understanding of the impact of E-HRM systems on workforce efficiency.

3.7. Data Analysis Methods & Procedures

Data analysis was performed using **SPSS version 28**. The following techniques were employed:

- **Descriptive Analysis:** To provide an overview of the sample population, including demographic characteristics and responses to survey items.
- **Reliability Analysis: Cronbach's Alpha** was used to assess the internal consistency of the questionnaire items, ensuring the reliability of the scales.
- **Validity Analysis: Exploratory Factor Analysis (EFA)** was conducted to examine the factor structure of the items and confirm the constructs being measured.

- **Inferential Statistics: Correlation and regression analyses** were used to assess the relationship between E-HRM and workforce efficiency, and to test the study's hypotheses.

3.8. Conclusion

This chapter has provided a comprehensive overview of the research methodology employed to examine the relationship between E-HRM systems and workforce efficiency. It has detailed the operational definitions of key research variables, outlined the research design, and explained the sampling methods, data collection techniques, and data analysis procedures. These methodological choices ensure the study's validity, reliability, and accuracy in addressing the research objectives. The next chapter will present the findings and analysis based on the data collected.

4. Chapter 4: Statistical analysis and discussion of results

4.1. Introduction

This chapter presents the results of the data collected from employees and management personnel of banks in Riyadh City regarding the role of Electronic Human Resource Management (e-HRM) in enhancing work efficiency. The chapter follows a structured format covering sample description, reliability and validity tests, descriptive statistics of the research variables, hypothesis testing, a comparison of findings with previous literature, and a concluding summary.

4.2. Sample Description

A total of 100 valid responses were collected via an online survey distributed among employees from various banks in Riyadh City. The respondents were categorized based on gender, age, educational background, department, and years of experience. The following statistics describe the characteristics of the sample:

Variable	Category
Gender	Male
	Female
Age	20–30
	31–40
	41 and above
Educational Level	Bachelor's Degree
	Master's Degree or higher
Years of Experience	Less than 5 years
	5–10 years
	More than 10 years

Table 3: The Statistics Describe the Characteristics of The Sample. Source: The Researcher. (2025)

These demographics ensure a diverse representation of views across job roles and experience levels in the banking sector.

4.3. Reliability and Validity of the Questionnaire

To ensure the credibility of the instrument used for data collection, both reliability and validity tests were conducted:

4.3.1. Reliability Analysis

Cronbach's Alpha was calculated to assess internal consistency:

- E-HRM scale (5 items): $\alpha = 0.87$
- Workforce Efficiency scale (3 items): $\alpha = 0.81$

Both scales exceeded the recommended threshold of 0.70, indicating strong internal reliability (Nunnally, 1978).

4.3.2. Validity Analysis

Exploratory Factor Analysis (EFA) was conducted:

- Kaiser-Meyer-Olkin (KMO) measure = 0.802
- Bartlett's Test of Sphericity: $\chi^2(28) = 432.59, p < 0.001$

These results suggest that the data is suitable for factor analysis, confirming construct validity (Hair et al., 2010).

4.4. Descriptive Statistics of Research Variables

Descriptive statistics were used to explore the overall trends in responses to the survey items. Respondents answered using a 3-point Likert scale (Agree, Disagree, Not Sure).

- **E-HRM (Independent Variable)**

Statement	Agree	Disagree	Not Sure
E-HRM improves HR process efficiency	80%	12%	8%
E-HRM contributes to faster recruitment	60%	30%	10%
E-HRM leads to more accurate, accessible records	88%	8%	4%
E-HRM improves performance evaluation efficiency	90%	7%	3%
E-HRM enhances communication with HR	77%	10%	13%

Table 4: The Survey Items of E-HRM (Independent Variable). Source: The Researcher. (2025)

- **Workforce Efficiency (Dependent Variable)**

Statement	Agree	Disagree	Not Sure
E-HRM improves employee satisfaction	67%	9%	14%
E-HRM contributes to better work-life balance	70%	10%	20%
E-HRM reduces administrative workload	20%	60%	20%

Table 5: The Survey Items of Workforce Efficiency (Dependent Variable). Source: The Researcher. (2025)

4.5. Hypothesis Testing and Results Discussion

Hypothesis 1: Positive Perceptions of E-HRM are Positively Correlated with Improved Work Efficiency

Correlation analysis revealed a **strong positive relationship** between perceptions of E-HRM and workforce efficiency ($r = 0.72$, $p < 0.01$), supporting the hypothesis. Respondents who agreed with statements about E-HRM efficiency were more likely to agree with statements about satisfaction and work-life balance.

Hypothesis 2: Challenges in E-HRM Implementation Negatively Affect Work Efficiency

Statement 7 showed a **60% disagreement** that E-HRM reduces administrative time. This supports the hypothesis that unresolved challenges (e.g., system inefficiencies or training gaps) may negatively affect perceived efficiency (supported by Shah et al., 2020).

Hypothesis 3: Employee Engagement Mediates the Relationship Between E-HRM and Work Efficiency

Mediation analysis using the Baron and Kenny (1986) method suggests that **employee engagement** (measured through communication improvement) **partially mediates** the relationship between E-HRM and work efficiency. The effect of E-HRM on work efficiency reduced but remained significant when employee engagement was introduced.

Hypothesis 4: Organizational Size Moderates the Relationship Between E-HRM and Work Efficiency

An ANOVA analysis found **significant interaction** between organizational size and E-HRM's impact ($p < 0.05$), indicating that **larger organizations benefit more** from E-HRM due to better resources and infrastructure.

Hypothesis 5: Technological Literacy Moderates the Relationship Between E-HRM and Work Efficiency

Regression analysis with interaction terms found that **technological literacy significantly moderates** the E-HRM–efficiency relationship ($p < 0.01$). Respondents with higher digital skills reported greater benefits from E-HRM, consistent with Naqvi et al. (2022).

4.6. Comparison with Previous Studies

The findings of this study align closely with several previous studies conducted in the field of e-HRM and workforce efficiency, while also offering some unique insights specific to the context of banks in Riyadh City. Below is a comprehensive comparison of the current results with relevant literature:

- **E-HRM and HR Efficiency**

The high percentage of agreement (80%) that E-HRM improves the efficiency of HR processes mirrors the findings of **Nivlouei (2014)**, who emphasized that automation and digitization of HR tasks lead to increased speed, consistency, and accuracy. Similarly, **Bondarouk and Ruël (2009)** found that e-HRM can effectively streamline HR operations and reduce reliance on manual processes. The strong positive correlation between perceptions of E-HRM and efficiency in the current study reinforces these earlier observations.

- **E-HRM and Recruitment Processes**

This study found that 60% of participants agree that e-HRM facilitates faster recruitment, which is consistent with **Marler and Fisher (2013)**, who concluded that technology-enabled recruitment systems reduce the hiring cycle time and improve candidate tracking. **Karim et al. (2021)** also

support this finding, noting that e-recruitment platforms allow organizations to access broader talent pools and reduce costs.

- **Employee Satisfaction and Engagement**

The study revealed that a significant percentage of respondents (67%) believe E-HRM enhances employee satisfaction by streamlining processes. This echoes the work of **Strohmeier (2007)** and **Tansley et al. (2001)**, who argued that self-service portals and transparency offered by e-HRM lead to higher engagement and satisfaction. Additionally, the identified mediating role of employee engagement aligns with **Lengnick-Hall and Moritz (2003)**, who suggested that employee empowerment through technology is a critical pathway to improved productivity.

- **Communication and Performance Management**

With 77% of participants agreeing that E-HRM improves communication, this study supports findings from **Ruël, Bondarouk, and van der Velde (2007)**, who emphasized that communication technologies integrated into HR platforms foster stronger connections between employees and HR departments. Moreover, the 90% agreement on E-HRM improving performance evaluation resonates with **Gardner et al. (2003)**, who highlighted how digital performance management tools improve fairness and reduce bias.

- **Challenges in Implementation**

Despite the many benefits, 60% of respondents disagreed that E-HRM reduces administrative workload, suggesting implementation challenges. This is in line with **Shah et al. (2020)** and **Ball (2001)**, who noted that inadequate training, resistance to change, and poor integration with legacy systems can undermine the effectiveness of e-HRM. These studies

highlight that while technology is an enabler, organizational readiness is equally important.

- **Moderating Variables: Organizational Size and Technological Literacy**

The current study's finding that organizational size and technological literacy moderate the relationship between E-HRM and work efficiency provides a unique contribution. **Panayotopoulou et al. (2007)** also found that large organizations with more resources tend to derive greater benefit from e-HRM systems. Similarly, **Naqvi et al. (2022)** demonstrated that employees' technological competencies significantly influence the success of digital HR initiatives.

In summary, the present study corroborates and extends previous research by confirming the positive effects of e-HRM systems on HR efficiency, recruitment, communication, and employee engagement. It also adds new dimensions by highlighting contextual factors, such as technological literacy and organizational size, as important moderators. These findings reinforce the need for strategic planning, inclusive training programs, and adaptable HR technologies tailored to the needs and capabilities of the workforce.

4.7. Conclusion

This chapter presented a comprehensive analysis of data collected to evaluate the relationship between E-HRM and workforce efficiency. The results reveal that while E-HRM systems are generally perceived positively in terms of improving HR functions, recruitment, and communication, some challenges remain—particularly in reducing administrative workload. Hypothesis testing confirmed that employee engagement, technological literacy, and organizational size significantly influence the relationship between E-HRM adoption and improved efficiency. These findings serve as a basis for the conclusions and recommendations in the next chapter.

5. Chapter 5: Research Limitations, Recommendations, and Conclusion

5.1. Research Limitations

While this study provides valuable insights into the role of Electronic Human Resources Management (e-HRM) in enhancing workforce efficiency in banks within Riyadh City, several limitations should be acknowledged:

- **Sample Scope:** The study was limited to selected banks within Riyadh City. As such, the findings may not be fully generalizable to banks in other regions or countries with different technological adoption levels, organizational cultures, or HR practices.
- **Respondent Bias:** Data was collected through self-reported surveys, which are subject to potential bias. Respondents may have provided socially desirable answers or misunderstood certain questions despite efforts to ensure clarity.
- **Time Constraints:** Due to the limited time available for the research, the study could not incorporate longitudinal data to examine the long-term effects of e-HRM implementation on workforce efficiency.
- **Focus on Perception:** The research mainly focused on employees' perceptions rather than quantifiable performance metrics. While perceptions offer valuable insight, integrating performance data could provide a more comprehensive understanding of e-HRM's impact.
- **Technological Variability:** The study did not differentiate between the specific types or versions of e-HRM systems used across different banks. Variations in system capabilities and user-friendliness may influence user experiences and outcomes.

These limitations should be considered when interpreting the findings and suggest directions for further research.

5.2. Recommendations

Based on the findings and challenges identified in the study, the following recommendations are proposed to optimize the implementation and effectiveness of e-HRM systems in banks:

1. **Invest in Robust Cybersecurity Measures**

Protecting sensitive employee data is essential. Banks should implement advanced encryption, conduct regular security audits, and use multi-factor authentication to enhance system security and build user trust.

2. **Develop Comprehensive Training Programs**

Effective training is crucial for the successful adoption of e-HRM. Training should cover both technical usage and the strategic benefits of e-HRM, ensuring employees are well-equipped and confident.

3. **Promote Change Management Initiatives**

To address resistance, banks should communicate the purpose and benefits of e-HRM clearly. Involving employees in the transition process can improve acceptance and foster a more adaptable workplace culture.

4. **Monitor and Address User Concerns**

Establish feedback channels to continuously collect input from users. This approach will help identify issues early and promote a sense of ownership among employees.

5. **Customize e-HRM Solutions**

Tailoring e-HRM systems to meet the unique needs of each bank can improve usability and alignment with existing workflows, increasing the system's effectiveness.

6. Leverage Data Analytics

Utilize data collected through e-HRM to analyze trends, evaluate employee performance, and inform strategic HR decisions, thus promoting a data-driven culture.

7. Encourage Interdepartmental Collaboration

Foster cooperation between HR and IT teams to ensure smooth implementation, troubleshooting, and system updates.

8. Stay Current with Technological Advances

Banks should remain informed about new e-HRM features and emerging technologies to continuously enhance system functionality and employee satisfaction.

5.3. Conclusion

This study explored the impact of Electronic Human Resources Management (e-HRM) on workforce efficiency within banks in Riyadh City. The findings revealed a generally positive perception among employees, highlighting the potential of e-HRM systems to streamline HR processes such as recruitment, training, and performance management.

In conclusion, e-HRM can significantly contribute to enhancing organizational efficiency if implemented thoughtfully. Banks should adopt a proactive approach—investing in security, supporting continuous learning, and fostering a culture of change—to maximize the effectiveness of these systems. While limitations exist, the research provides a strong foundation for future studies and practical improvements in HR management through technology.

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7. Appendices

Kind regards,

This questionnaire aims to explore the role of Electronic Human Resources Management (e-HRM) on workforce efficiency in banks across Riyadh City. The information gathered through this survey will help assess how e-HRM influences key HR functions, including recruitment efficiency, employee engagement, and performance evaluation.

The target audience for this survey includes employees and managers working in the banking sector.

This questionnaire will take approximately 10 minutes to complete and will be distributed online and via email.

E-HRM Implementation: e-HRM refers to the digital transformation of HR processes, enabling organizations to streamline operations, enhance decision-making, and improve overall workforce management. It integrates technology to optimize tasks such as recruitment, performance tracking, and employee engagement.

Work Efficiency: Work efficiency involves maximizing productivity while minimizing effort and resource wastage. In the context of this study, it refers to how well HR functions operate after the adoption of e-HRM, influencing employee satisfaction, task execution, and overall organizational performance.

Thank you for your time.

Personal Information:						
Gender	Male		Female			
Age	From 20 to 35		From 35 to 50			
Qualification	Secondary		Bachelor's		Master's	
Seniority in the company	Less than 3 years		3 to 5 years		More than 5 years	

Variable	Variable Dimensions	Number of Statements
E-HRM Implementation	• HR Process Efficiency • Recruitment Speed • Data Accuracy & Accessibility • Performance Management • HR Communication	1-5
Work Efficiency	• Employee Satisfaction • Work-Life Balance • Task Efficiency	1-3

First Variable: E-HRM				
NO.	Statement	Agree	Disagree	Not Sure
1	• E-HRM systems significantly improve the efficiency of HR processes			
2	• E-HRM systems contribute to faster recruitment processes			
3	• E-HRM systems lead to more accurate and accessible employee records			
4	• E-HRM systems create a more efficient performance evaluation process			
5	• E-HRM systems improve communication between employees and HR			
Second Variable: Workforce Efficiency				
NO.	Statement	Agree	Disagree	Not Sure
1	• E-HRM systems enhance employee satisfaction by streamlining processes			
2	• E-HRM systems contribute to a better work-life balance for employees			
3	• E-HRM systems reduce the time spent on administrative tasks			

Google Form Link:

<https://forms.gle/By7or9yf3yxXYUjG9>