Electronic Management as a Contemporary Approach to Human Resource Management: Requirements and Challenges of its Implementation

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Abstract:

The major challenges facing organizations in providing products and services quickly while ensuring high quality All departments must develop their procedures and consider their organizational structures and workers' culture, capabilities and technical and professional skills, Based on the latest findings of management science and modern information technology that effectively contribute to the application of electronic administration, especially in the functions of human resources management hence, e-management of human resources has become one of the most recent trends to ensure the quality of staff management processes from recruitment, training, and performance appraisal. This paper also aims to highlight that the successful application of electronic management in human resources management depends on the availability of a variety of requirements and addressing challenges with proactive complaint.

Keywords: Human Resources Management; Information Technology and Communication; Electronic Management

Jel Classification Codes : O33, M12, L86.

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1. INTRODUCTION

Organizations today operate within open environments, regardless of the nature of their activities, and are by no means insulated from ongoing technological advancements. They are compelled to deliver essential goods and services to society in the required quantities and quality, and within increasingly compressed timeframes. Simultaneously, to ensure their survival in an intensely competitive global landscape, organizations must rationalize costs and efforts while relying on competent human resources. Accordingly, in order to strengthen their position, sustain their presence, and ensure the continuity of their operations, they are inevitably required to adopt modern technologies and information systems, and to keep pace with developments in information and communication technologies through the qualification and development of their human resources.

In light of the unprecedented expansion of modern technologies, the information revolution, and the widespread availability of the Internet and other communication networks, it has become imperative for organizations to leverage these technologies to ensure the quality of performance and production, improve work methods, and achieve their intended objectives with high levels of efficiency. These technologies constitute a driving force behind economic, social, and political transformations at the global level.

The emergence of information and communication technologies has generated a range of transformations in organizational management practices. Among the most prominent approaches arising from this transformation is electronic management, which extends beyond merely enhancing patterns of interaction between administrative bodies and their stakeholders. It equally entails the development of internal interaction patterns and interrelationships among the various components and departments of the organization, as well as the strengthening of relationships between the organization and other relevant institutions and administrative entities.

1.1 Study Problem

Human resources are among the most critical assets available to organizations for the achievement of planned objectives. The excellence of contemporary organizational performance does not depend solely on the possession of technological or financial resources; rather, it also derives from the capacity to secure categories of human resources characterized by specific standards of skill, competence, and efficiency. Such resources enable organizations to maximize the utilization of their available capabilities and, consequently, to assimilate new concepts and ideas that facilitate the confrontation of competitors and the challenges imposed by environmental conditions.

The substantial challenges faced by organizations in delivering products and services rapidly while maintaining high quality necessitate that all administrative units develop their procedures and reconsider their organizational structures, employee culture, and technical and professional competencies. This requires reliance on the latest developments in management sciences and modern information technologies, which contribute effectively to the implementation of electronic management, particularly within the functions of human resource management.

In light of the foregoing, the problem addressed by this research paper centers on

identifying the challenges confronting organizations in implementing electronic management frameworks for their human resources.

1.2 Study Hypotheses

To address the research problem, the study hypotheses were formulated as follows:

- H1: Organizations face organizational and technological challenges that negatively affect the effectiveness of electronic human resource management.
- H2: The successful implementation of electronic human resource management requires a workforce that is prepared to adapt to digital systems.

1.3 Study Significance

The significance of this study lies in highlighting the concept of electronic human resource management as a contemporary orientation aimed at improving human resource management practices and functions in order to enhance organizational competitiveness within a dynamic work environment characterized by continuous technological advancement. The study will also contribute to understanding the challenges that hinder the implementation of electronic human resource management and to identifying the essential requirements for overcoming them.

2.The Conceptual Framework of Electronic Human Resource Management

2.1 Definition of Electronic Human Resource Management

Electronic human resource management is regarded as one of the most important approaches to implementing human resource strategies, policies, and practices within the organization through the use of information technology. The term encompasses all mechanisms and components of integration between human resource management and information technology; in other words, it represents an active and dynamic version of human resource management (Ahmed Jameel, 2015, p. 40).

Electronic human resource management is a new administrative paradigm based on the conscious acceptance and utilization of information and communication technologies in performing the fundamental functions of managing and developing human resources. It represents a novel pattern of managerial thought and practice that responds to the realities of an era characterized by rapid change, adopts its evolving technologies, implements its effective systems, and leverages information and communication technologies in carrying out its functions. Thus, electronic human resource management is grounded in conscious understanding and the appropriate application of information technology in the management and development of human resources (Shahanda, 2024, p. 09).

It is also defined as the distinctive application of web-based technologies in systems related to human resources, which—alongside other organizational changes—facilitates broad access to human resource information and provides numerous opportunities for managing such information (Hopkins & Markham, 2007, p. 18).

Electronic human resource management is further defined as the full utilization of information network channels within and outside the organization for their comprehensive practical application to the human element, supported by top management. It is also described as a comprehensive managerial methodology aimed at the purposeful use of modern technologies and applications aligned with ongoing developments, supporting their implementation in the core

functions and practices of human resource management and fostering their development (Al Sherif, 2013, p. 48).

2.2 Justifications for the Transition to Electronic Human Resource Management within the Organization

There are numerous indicators prompting the shift toward electronic management as a means of renewing the methods and procedures governing administrative and organizational operations related to human resources within organizations:

- The rapid evolution of business management methods and technologies, including continuously emerging innovations and electronic transactions;
- The intensification of competition among organizations and the necessity of establishing mechanisms for differentiation within each organization;
- The regulation of employment relationships in place of rigid functional specialization, the modification of procedures and processes, and the assurance of continuous communication among employees across an expanded scope of operations;
- The enhancement of ongoing human resource services, such as career path management;
- The improvement of employee participation;
- The control and standardization of performance according to specified criteria through the provision and unification of data at the organizational level;
- The emergence of the information and knowledge revolution and the global transition toward a knowledge-based economy;
- The necessity of responding to environmental requirements and adapting accordingly;
- The shift from a traditional managerial paradigm to a contemporary administrative mindset grounded in information and communication technologies, and their integration within a managerial framework centered on defining the organization's strategic objectives and identifying appropriate technologies capable of facilitating their achievement;
- The design of organizational structures in light of information flow across hierarchical levels;
- The management of time as a primary resource, alongside the mobilization and effective utilization of all available capacities;
- The orientation toward employing information technology to ensure the accurate execution of human resource functions;
- The adoption of advanced decision-support systems and decision-making methodologies, including the provision of immediate recommendations;
- The transition from batch-processing systems to real-time analytical processing systems (Osama, 2023, pp. 489–506).

2.3 Advantages of Electronic Human Resource Management

Among the most significant advantages of electronic human resource management are the following (Al-Naggar, 2008, p. 248):

- An increased demand for employees under electronic human resource management due to the ease of competition and the search for alternative employment opportunities.

- The use of electronic portals by institutions to strengthen their competitive position, thereby enhancing overall productivity.
- The integration of various databases within the human resource management function—such as performance software systems—and making them accessible via websites to both employees and managers.
- The preparation of real-time reports on employees through the company's online portal, using criteria that provide managers with objective decision-making tools.

It is believed that organizations can achieve a competitive advantage over others by developing their human resources through abandoning traditional methods and adopting technology-based approaches that ensure the following benefits:

- Faster implementation of training and effective application of acquired skills.
- The acquisition of distinctive capabilities that differentiate the organization from others.
- Improvement of relationships among the various functional sectors within the institution.
- Enhancement of the services provided to customers.
- Greater flexibility and improved responsiveness to market changes.

2.4 Objectives and Significance of Electronic Human Resource Management

Electronic human resource management (e-HRM) seeks to achieve a set of objectives identified by numerous scholars, notably providing human resources with opportunities to create new avenues for contributing to enhanced organizational efficiency through the utilization of tools such as knowledge management, strengthening competitiveness by improving human resources, and reducing costs. Information networks contribute to minimizing the use of paper files, printing processes, and the publication of advertisements in newspapers and magazines, while enhancing employee efficiency and productivity by ensuring access to information at any time and from any location, expediting the implementation of training, facilitating the application of acquired skills, and advancing relationships among various functional sectors within the organization (Alwis, 2010, p. 81).

The objectives of electronic human resource management are integrated with those of electronic management and align with changes in the business environment. They revolve around increasing focus on strategic issues, enhancing procedural flexibility, and improving the efficiency of human resource management. The principal objectives may be summarized as follows (Quraish, Boumjan, & Soltani, 2017, p. 155):

- Improving the strategic orientation of human resources;
- Reducing labor costs and administrative expenditures;
- Achieving gains from human resources;
- Optimizing the utilization of human resource capabilities and potentials;
- Facilitating the performance of human resource management functions;
- Raising performance and productivity levels within the organization;
- Developing and improving labor relations and enhancing employee satisfaction;
- Providing more effective managerial support across organizational departments;
- Offering greater opportunities for participation and training;
- Enhancing the organization's image.

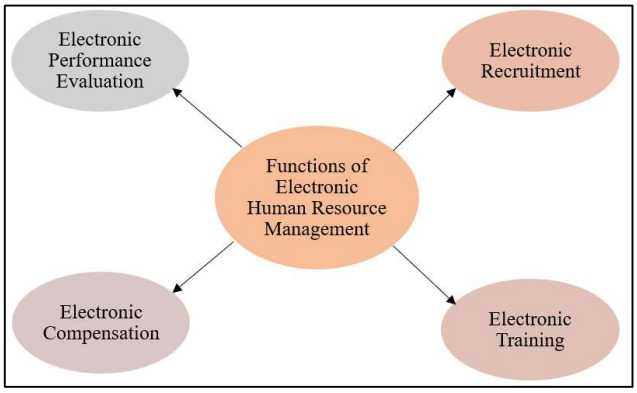
With regard to the significance of electronic human resource management, the use of technology in HR management has a substantial impact in reducing administrative costs associated with various personnel processes, shortening recruitment and selection periods, increasing employee interaction with HR activities, determining compensation, and conducting training via the Internet, among other functions. Accordingly, e-HRM positively affects the organization by enabling it to achieve the following (Bouzourine, 2022, p. 404):

- Reducing data entry and retrieval costs through employee self-service systems;
- Lowering the costs of printing and disseminating information;
- Decreasing costs through the automation of HR processes and activities;
- Enhancing decision-making efficiency through advanced analysis of HR data and information;
- Reducing correction costs by increasing the accuracy of HR-related information;
- Minimizing information technology infrastructure requirements.

2.5 Functions of Electronic Human Resource Management

The functions of human resource management have not changed within the framework of electronic human resource management; rather, the methods and approaches used to perform these functions have evolved to rely primarily on information technology. Moreover, the role of individuals within organizations has transformed, as they have become more actively involved in performing HR functions than previously. This is illustrated in the following figure:

Fig.1: Functions of Electronic Human Resource Management



Source: Prepared by the researcher.

Among the functions are the following (Bouzourine, 2022, p. 405):

2.5.1 Electronic Recruitment

Electronic recruitment constitutes one of the principal domains through which E-HRM can be utilized. Internet-based electronic recruitment enhances the efficiency of the recruitment process for both the organization and job applicants, as it involves a range of procedures aimed at identifying suitable candidates to fill vacant positions within the organization. Human resources specialists announce vacancies electronically, either through the organization's official website or by posting job advertisements on social media platforms. The eligibility criteria for applicants are specified through the completion of an electronic application form.

Through this approach, the organization reduces the costs associated with paper-based transactions and significantly saves time. It also expands access to applicants from diverse

geographical regions. Subsequently, the evaluation process is conducted electronically, as each organization adopts a selection program aligned with the requirements of the advertised position. Additionally, electronic interviews may be conducted to gather further information about candidates, or online examinations may be administered to individuals applying for the position (Thabet & Najeeb, 2022).

As for the advantages of electronic recruitment, they may be summarized as follows (Suleiman, 2020):

- Reducing recruitment time: Electronic recruitment enables direct interaction and allows the search and hiring process to continue around the clock, seven days a week. Employers may publish a job advertisement within approximately twenty minutes on an online job portal, without limitations on advertisement size, and immediately begin receiving résumés. Electronic recruitment is approximately 70% faster than traditional recruitment methods and accelerates the recruitment cycle at every stage, from posting the vacancy to receiving applications, screening résumés, managing communications, and overseeing workflow.
- Lower recruitment costs: The cost of advertising vacancies and searching for suitable candidates through online recruitment portals may be up to 90% lower than the expenses incurred through recruitment agencies or traditional advertising channels.
- Broader organizational reach: Both employers and job seekers benefit substantially from electronic recruitment platforms due to the extensive scope of search and visibility these platforms provide.
- Provision of advanced screening tools: Modern screening and filtering tools enable organizations or recruitment officers to identify the most suitable candidates by applying up to twenty-four criteria available on recruitment websites. Through these criteria, applicants are evaluated based on required skills, educational attainment, job level, prior experience, and other relevant qualifications. This has enhanced the effectiveness of online recruitment processes and elevated the overall quality of applicants.
- Opportunities to showcase corporate branding: Employers may utilize their job advertisements to present the organization's brand identity, image, and values to prospective applicants, thereby positioning themselves as employers of choice.
- Advanced management tools: The entire recruitment process can be managed from a single platform, enabling employers to post vacancies, receive résumés, communicate with candidates individually or collectively, and monitor all related activities through a personalized interface characterized by high levels of efficiency and confidentiality. Job seekers may likewise track the status of their applications at each stage of the recruitment process through their personal accounts, thereby ensuring a distinctive experience for both parties.
- Maintaining confidentiality: Electronic recruitment platforms offer the possibility of preserving confidentiality for both employers and applicants. Employers may search résumés within the database without publicly advertising a vacancy if it is of a sensitive nature, or they may publish the vacancy while keeping the organization's identity undisclosed.

- Enhancing employer initiative and control: In online recruitment, the process remains under the direct control of the employer or recruitment officer, who may communicate directly with qualified applicants. The process does not require an intermediary to search, screen, evaluate, and select candidates possessing the required qualifications. Because the recruitment officer or employer solely manages the process, this affords distinctive insight into market conditions and the competitiveness of the position, while also ensuring the identification of the most qualified and suitable candidate in the long term.
- Building a reference database: Employers may retain outstanding résumés obtained through prior recruitment processes to establish a proprietary database comprising highly qualified candidates whose applications have already been screened, for potential future use.

To ensure the success of an electronic recruitment system, the following requirements must be fulfilled:

- Establishing clear criteria for job classification and the required qualifications;
- Making recruitment-related decisions in a timely manner;
- Developing systems for identifying individuals suitably qualified to fill vacant positions;
- Designing user-friendly websites for posting job announcements, ensuring ease of access, maintaining an updated list of available positions, and providing links that enable applicants to contact the relevant personnel (Nabil, 2015).

Electronic recruitment has been adopted in Algeria in response to various labor market needs, with the objective of reducing costs and accelerating the recruitment process to enhance efficiency, as is the case in many countries worldwide. Job advertisements are published through professional online platforms, most notably the professional networking site LinkedIn, which facilitates access to job seekers across different countries and thereby enables the attraction of highly qualified competencies and talents (Abdelhamid & Boutarfa, 2021, pp. 1–10).

It is noteworthy that the Directorate-General for Public Service has launched its own dedicated recruitment websites, as indicated in the following table:

Table 1. Electronic Recruitment Websites in Algeria

Electronic Recruitment Websites	Characteristics
www.dgfp.gov.dz	Despite holding exclusive authority to announce vacancies for the largest employment sector in Algeria, it functions merely as a job bulletin board without offering additional services. The website suffers from significant slowness and frequent downtime due to heavy traffic.
emploitic.com	The largest online recruitment platform in Algeria, established in April 2006. It records approximately 15,000 daily visitors (around 450,000 monthly). The platform includes 200,000 registered job seekers and 2,500 companies as permanent members offering job opportunities. It features a simple design, fast page loading, and various communication tools. Notably, it organizes online professional job fairs with the

	participation of institutions and HR specialists. Its main limitation is its availability exclusively in French.
tawdif.com	One of the leading Algerian recruitment websites, launched in September 2007, attracting around 350,000 monthly visitors from within and outside Algeria. It publishes approximately 3,500 job offers; each listing is viewed an average of 13,900 times and receives about 385 applications, reflecting strong engagement with this recruitment medium. The site is distinguished by effective design and ease of search. It is available in French and English, with the absence of Arabic, and demonstrates limited use of feedback mechanisms and social media integration.
elkhedma.com	Distinguished as the only site appearing in Google commercial search results. It holds a favorable ranking in classification directories, particularly Alexa, indicating sustained promotional efforts. According to site statistics, it includes 6,771 companies, 221 job offers, and 67,000 registered applicants. Its weaknesses include limited design quality and a near absence of communication tools, events, and personalized services.
emploialgerie.com	The website achieves a satisfactory level of traffic and maintains good rankings in search engines and classification directories. It is characterized by continuous updates, particularly in recent months. However, it is limited by the relatively small number of job offers and registered users.

Source: (Mekiri, 2015, p. 112)

2.5.2 Electronic Training

Electronic human resource management has generated a substantive transformation in HR management, particularly in the field of training. Organizations have found it easier to educate and train their employees remotely as a means of enabling them to perform their duties effectively through technological tools and e-learning, thereby preparing them to meet the demands of the digital economy. Consequently, several definitions of the concept of electronic training have emerged, including: “the ability to access diverse information sources easily and efficiently in a manner that saves time and cost, or the effective use of these technologies to develop and improve the traditional system and create new forms of modern educational systems.” Accordingly, electronic training refers to the use by the human resources department of information and communication technologies to ensure the delivery of information to learners through compact discs or via online communication networks in order to train them to perform their tasks in the best possible manner (Mouakket, 2005).

Electronic training offers several advantages, including the provision of education free of charge and without temporal or spatial constraints, thereby enabling employees to learn more quickly and conveniently. Monitoring an effective training process through e-learning contributes to reducing both direct costs (travel, training materials, and trainers’ fees) and indirect costs (time spent traveling and accommodation).

Among the advantages of electronic training are the following (Faqaer, 2020, p. 139):

- Considerable flexibility in the processes of educating and training employees;

- Providing significant opportunities for business development through access to high-quality training while saving time and cost;
- Encouraging employees to assume responsibility for their own training and self-directed learning, in addition to organizing their learning schedules in a manner that suits them, thereby increasing their motivation to learn;
- Granting broad freedom in selecting training and learning times, enabling the organization to utilize its human resources without interruption;
- Incorporating modern educational methods that combine the objective of knowledge acquisition with electronic learning.

2.5.3 Electronic Performance Evaluation

The performance evaluation process is based on monitoring the extent to which human resources are able to achieve the established results and intended objectives, through reference to performance standards. This entails measuring work outcomes, identifying deviations, and assessing performance gaps—whether positive or negative—followed by their interpretation and the utilization of the resulting insights in subsequent planning. Performance is then enhanced through an accurate analysis of the performance gap and the effective management of its implications.

Electronic performance evaluation relies on the provision of digital tools that enable human resource management to measure performance more efficiently. Among the most significant electronic means employed in performance assessment are computerized performance monitoring systems. These systems function as instruments for measuring variables that bear a direct and meaningful relationship to performance, such as the number of units produced or the time required to complete tasks. Consequently, they facilitate the monitoring of employees' performance, behaviors, and the time allocated to their job functions. This contributes to the expanding role of the internet in performance oversight, thereby enabling human resource management to electronically monitor employee behavior, determine productivity levels, and evaluate performance through relevant data (Bousaha & Boussouassa, 2023, p. 17).

2.5.4 Electronic Compensation

Compensation systems are utilized for the development and implementation of wage payment structures within organizations, and they perform numerous functions, including the calculation of wage payments, taxes, and insurance contributions. Some systems generate pay slips, which may be issued electronically. In addition, compensation systems notify employees of various matters related to their financial entitlements and enable managers to conduct multiple estimations, such as calculating wage-related expenditures.

Electronic human resource management systems can support compensation systems in several ways, including the following (Hopkins & Markham, 2007, p. 134):

- Achieving greater integration between compensation systems and attendance recording systems, particularly in positions that are dependent on hourly work.
- Facilitating the administration of payroll procedures, such as sending pay slips via email, thereby reducing administrative expenses.
- Enabling rapid responses to changes in employees' status, such as the allocation of

incentives and bonuses—especially in light of contemporary trends toward linking compensation to performance across organizations and tying incentives to the achievement of specified objectives, such as attaining a particular level of knowledge and skill. Verification may occur through online assessment tests, the results of which are transmitted to the manager, upon which the employee is rewarded and their data automatically updated within the database. In cases where the employee fails the assessment, the system may be capable of identifying areas of weakness and determining the necessary training domains required to enhance their knowledge.

- Automating routine expense forms, such as those related to transportation and travel, whereby the employee can complete the form online or through the organization's portal. The system calculates the value of such expenses and transfers them electronically to the payroll system.

3. Electronic Human Resource Management: Challenges and Requirements

3.1 Dimensions of Electronic Human Resource Management

The dimensions of electronic human resource management revolve around the operational, relational, and transformational aspects, given their significance in managing the organization's most critical resource and asset. These dimensions contribute to achieving acceptable levels of efficiency, effectiveness, and productivity, while also reducing costs and thereby ensuring organizational continuity and growth amid contemporary challenges.

3.1.1 Operational Human Resource Management

Operational electronic human resource management encompasses the fundamental administrative activities of the human resources department, such as payroll processing, employee data management, maintenance of departmental records, and related functions that constitute the bulk of the department's workload. Several scholars have underscored the cost-reduction and efficiency gains enabled by electronic human resource management in this domain (Marler, 2009; Ruël et al., 2004). These benefits are realized through reducing the number of human resource personnel assigned to such activities, accelerating processing speed, and minimizing administrative burdens, thereby freeing managerial time through performance evaluation systems based on electronic platforms that aggregate data and apply standardized formulas adopted by the human resources department to determine specific performance levels. This also facilitates accurate performance appraisal and the subsequent implementation of corrective and remedial policies to address weaknesses, while ensuring proper workflow, improving processes, and maximizing operational efficiency (Ruël et al., 2004; Ruta, 2005; Strohmeier, 2007). Accordingly, this dimension pertains to activities and practices that influence the operational sphere of electronic human resource management by enhancing the efficiency and effectiveness of processes and eliminating administrative constraints and obstacles.

3.1.2 Relational Human Resource Management

Relational electronic human resource management comprises activities that support the reciprocal relationship between the human resources department and other organizational units, both internally and externally. Through this dimension, human resource activities such as electronic recruitment, e-learning, and electronic performance management may be computerized, alongside various applications involving transaction automation through the use of intranets,

extranets, electronic human resource portals, and employee or managerial self-service systems. Relational electronic human resource management provides employees and managers with remote access to human resource information, thereby enhancing their capacity to communicate with internal and external stakeholders and equipping individuals with the necessary tools to perform human resource activities independently. This, in turn, reduces reliance on human resource staff, enabling them to redirect their priorities. This dimension adds value to the organization by supporting processes and expanding channels of communication and interaction with internal and external partners. Evidently, relational human resource management is broader in scope and more expansive than its operational counterpart (Poisat & Mey, 2017).

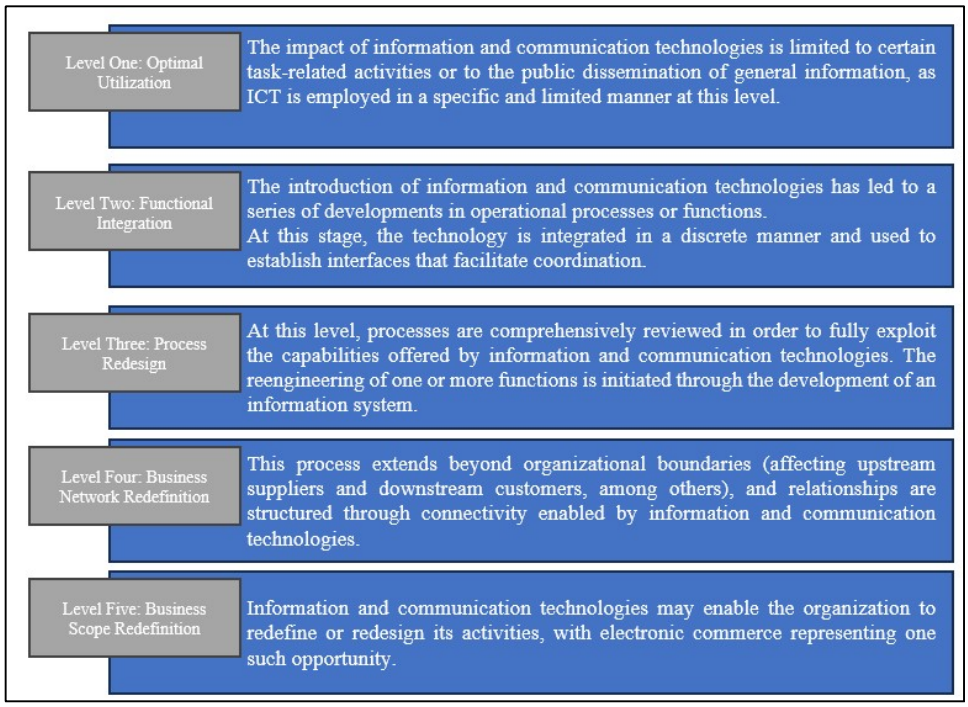
3.1.3 Transformational Human Resource Management

Transformational electronic human resource management refers to activities and practices that confer a strategic orientation upon human resource functions through strategic competency management, information management, and knowledge management. This dimension manifests at the highest level of human resource management through the transition from a transactional to a transformational orientation, achieved by reducing routine operational tasks and redirecting efforts toward strategic initiatives. Such a strategic orientation requires the careful selection of highly adaptable, multi-skilled personnel capable of utilizing a diverse array of internet-based enabling tools that facilitate the development of their knowledge and competencies in alignment with the organization's strategic objectives (Najm & El-Saeed).

3.2 Stages in the Restructuring of the Human Resources Function

The organizational impact of information and communication technologies is, in reality, dynamic and continuous. Venkatraman (in Scott Morton, 1995) identifies five levels of restructuring/design brought about by information technology, which are applicable to the field of human resource management as follows:

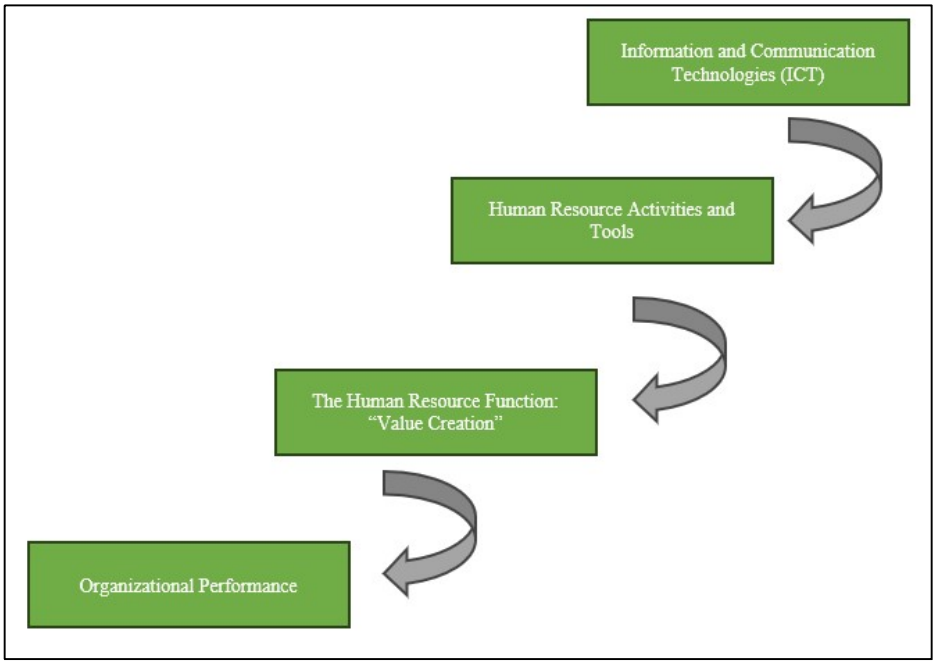
Fig.2. The levels generated by the adoption of information and communication technologies within the organization



Source: (Laval & Kalika, 2007).

As for the effects resulting from the implementation of information and communication technologies on the human resources function, they are illustrated in the following figure:

Fig. 3. The integration of information and communication technologies into the human resources function



Source: (Lisein, 2007, p. 20)**.**

3.3 Challenges Facing Electronic Human Resource Management

The digital technologies currently available and under development are expected to contribute to enhancing organizational performance and to respond, at least partially, to workforce-related challenges. Consequently, human resource managers are required to mobilize their expertise in this domain to support institutional transformation. Technological advancements—such as artificial intelligence, automation, and data analytics—are reshaping human resource management practices, particularly in the areas of recruitment, training, and performance management.

Electronic human resource management involves the integration of information and communication technologies into human resource management processes. These processes confront a range of challenges associated with the use of technology—challenges that are neither exclusive to the human resources function nor entirely new, given that technological developments have progressively diffused over time. Nevertheless, their significance has increased.

Information technologies give rise to a new mode of information management. The study of the transition from traditional administrative practices to electronic practices may encompass three distinct yet interrelated phenomena:

- The degree to which electronic tools are utilized across various processes.
- The extent of the modifications introduced by these tools into administrative processes.
- The significance of changes in competencies (whether from an organizational, functional, or individual perspective) required for the exercise of management (Isaac, 2003).

The implementation of information technology facilitates the adoption of a new managerial logic characterized by specialization, adaptability, mobilization, participation, and proactivity. Accordingly, information technologies emerge as a potential source of competitive advantage within the human resources function. However, they also reshape communication patterns and power dynamics, while enabling the development of participatory management practices. The challenges faced by organizations in the context of implementing electronic human resource management are outlined in the following table:

Table.2: Challenges Facing Electronic Human Resource Management

Category	Challenges
Administrative Challenges	– Randomness in planning and weak strategic coordination in the implementation of electronic administration. – Failure to undertake the new organizational arrangements required for the introduction of electronic administration, including the addition or merger of certain departments or divisions, the definition of authorities and interdepartmental relationships, and the regulation of workflow among them. – Lack of clarity regarding the use of information and communication technologies and limited awareness of their intended objectives. – Reliance on traditional methods and adherence to conventional management principles. – Organizational resistance to change by employees opposing the adoption of modern technologies due to concerns about job security and career prospects.
Political Challenges	– Absence of effective political will and support to achieve a qualitative shift toward electronic administration, and insufficient political backing to persuade administrative bodies of the necessity of adopting modern technologies and keeping pace with the digital era. – Lack of high-level governmental bodies responsible for information exchange and consultation regarding the evaluation of electronic transformation programs and for making decisions to enhance and advance the electronic readiness index. – Absence of a legally protected electronic work environment defining the conditions of electronic transactions, including the lack of legislation criminalizing the hacking and sabotage of electronic administration systems and specifying deterrent penalties. – Existence of legal loopholes that may facilitate the commission of

	cybercrimes despite efforts to combat such offenses.
Financial and Technical Challenges	– High costs of establishing the infrastructure required for electronic administration, including hardware acquisition, application software, website development, and network connectivity. – High technical maintenance costs for electronic administration systems. – Limited financial allocations for training personnel in information systems and for recruiting highly qualified information technology experts. – Insufficient financial resources dedicated to electronic administration projects. – Lack of an integrated national infrastructure, restricting implementation at the countrywide level. – Limited Internet penetration and computer usage. – Unequal access to Internet services due to high usage costs for many individuals, contributing to the digital divide. – Technical constraints related to information technology at multiple levels.
Human Challenges	– Digital illiteracy among significant segments of populations in developing countries and difficulties in adapting to modern technologies. – Absence of training programs and the requalification of administrative personnel and regulatory bodies in the context of the transition to electronic administration. – Poverty and low individual income levels. – Growing social disparities between groups possessing computer equipment and those lacking access, exacerbating social fragmentation and weakening electronic administration initiatives. – Unemployment potentially resulting from the implementation of electronic administration and the substitution of labor by automation, leading to resistance driven by fears over job security and privileges.
Security Challenges	– Reluctance toward technology and lack of confidence in electronic transactions due to concerns over security and privacy breaches and loss of trust in online transactions (such as electronic transfers and credit card payments). Information security rests on three fundamental elements: the physical element (ensuring physical protection of information systems), the technical element (using modern technologies to safeguard information security), and the human element (developing skills, enhancing capacities, and strengthening the expertise of personnel in this field).

Source: (Abdelkader, 2022-2023)**.**

3.4 Requirements for the Implementation of Electronic Human Resource Management

The success of an electronic human resource management (e-HRM) project is contingent upon the provision of a set of essential requirements, which may be summarized as follows:

3.4.1 Administrative Requirements

- The presence of sound management that supports and sustains development and change, and that adopts innovative and contemporary administrative approaches.
- The determination of the degree to which each process or function contributes to the achievement of the intended objectives.
- The availability of electronic administrative leadership capable of interacting efficiently and effectively with information and communication technologies, while possessing the capacity for innovation, organizational culture reengineering, and knowledge creation.
- The elimination of bureaucratic and routine procedures that hinder development and renewal in organizational practices, alongside the development and simplification of work procedures and operational steps in order to alleviate administrative burdens.
- The absorption and elimination of unnecessary processes with the aim of simplifying the system and aligning it with the requirements of digital transformation.
- The provision of a modern, flexible organizational structure—both horizontally and vertically integrated in its communications—accompanied by an organizational culture centered on the values of innovation, initiative, and excellence in performance and task accomplishment with high efficiency.
- Raising awareness among employees regarding the significance and benefits of implementing electronic transactions and operations.
- The removal of boundaries between the Human Resources and Information Technology departments and the enhancement of their institutional standing, as the e-HRM system is accessible to all and capable of fostering integration between these departments and the various organizational systems.
- The need for employees within the Human Resources department to understand the nature of managerial work, as the introduction of computerized systems may reduce direct interpersonal communication and potentially create the perception among employees that management has diminished its concern for the human element.
- The maintenance of an acceptable level of performance, given the potential for a temporary decline in performance resulting from the transition from a traditional system to an electronic one.

3.4.2 Technical Requirements

- The existence of a network infrastructure grounded in an advanced technological and informational base;
- A comprehensive review of the foundational infrastructure of hardware, equipment, and software with the aim of updating it to ensure responsiveness to ongoing changes;
- The necessity of integrating electronic management with all modern electronic systems and communication and information networks, as these constitute essential and indispensable elements for the successful implementation of electronic management

applications. Digital technology evolves at a rapid pace, and its patterns are increasingly diverse, thereby presenting continuous and open options to management;

- The provision of robust technical and technological safeguards against all forms of system intrusion and data breaches;
- Ensuring system accessibility for all employees and compliance with recognized standards, particularly in the development of web pages (Benyamina, Nashed, & Zadi, 2019).

3.4.3 Human Requirements

- Identifying current and future needs for qualified personnel in information systems, software development, and internet-based operations, and attracting the most competent individuals in the fields of information systems and software;
- The necessity of adequately training human resources and preparing specialized technical cadres closely associated with information infrastructure and electronic communication network operations. This may be achieved through the implementation of structured training and educational programs designed to attain a high level of competence;
- Establishing effective systems for the retention, development, and motivation of personnel;
- Administrative empowerment of individuals in order to enable them to respond swiftly to technological environmental changes;
- The importance of fostering cultural awareness regarding the application of information technology and enhancing employees' and officials' understanding of the structure, performance, and advantages associated with the adoption and implementation of information technology, as well as the development of an adequate foundational infrastructure for operational and communication networks;
- Taking into account cultural differences, particularly when operating within an international environment.

3.4.4 Financial Requirements

- The necessity of securing adequate funding for the e-administration project, which requires substantial financial resources;
- The allocation of an independent budget for the project, subject to periodic review to ensure the continuity and sustainability of its funding.

3.4.5 Security Requirements

- Ensuring the protection of information and the privacy of all stakeholders interacting with the organization;
- Undertaking serious consideration to determine preventive defensive measures and procedures to safeguard computer systems (both hardware and data) against breaches intended for theft or the destruction of information;
- The importance of guaranteeing the protection and privacy of both organizations and individuals, which necessitates establishing a set of rules governing data

4. Conclusion

Modern technologies enable human resource management practices that are proactive, flexible, and competency-based, drawing upon the full workforce across all hierarchical levels of the organization. With the growing recognition of the integration of information and communication technologies into administrative work, numerous challenges have emerged in

leveraging these technologies effectively, particularly within administrative systems that establish the organization's principal regulatory frameworks. Similar difficulties have also arisen in relation to the individuals interacting with these technologies and the quality of their competencies.

Electronic administration requires fundamental transformations in the profile of the human resources suited to its implementation. This necessitates a comprehensive reconsideration of education and training systems to align with the requirements of this new transformation, including plans, programs, methodologies, and educational and training resources at all levels.

This study confirmed the validity of both hypotheses. It demonstrated that many organizations today face challenges related to strategic planning for digital transformation, adherence to traditional methods, and resistance to change—factors that constrain the effective implementation of electronic human resource management. Furthermore, the scarcity of qualified competencies in digital technologies, limited digital literacy among human resources, and the insufficiency of training programs constitute major human-related obstacles impeding the adoption of electronic human resource management within business organizations.

4.1 Study Recommendations

In light of the foregoing, the following recommendations are proposed:

- Invest in modern information systems and tools that facilitate the implementation of electronic human resource management within the organization;
- Strengthen technological infrastructure;
- Develop human competencies through the organization of training programs that support all human resource functions electronically;
- Raise awareness among human resources of the necessity of digital transformation to enhance management practices;
- Establish stringent policies to protect employee data and ensure its confidentiality;
- Provide an organizational environment supportive of digital transformation in human resource management practices.

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