

The Utilisation of Electronic Human Resources Management (e-HRM) in Malaysian Public Listed Companies

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Abstract: Human resource management (HRM) is expected to become more strategic as a result of the development of internet-based HRM technology, or e-HRM, according to the rhetoric associated with it. Using a survey dataset, data for the study were collected from 396 companies listed on the Bursa Malaysia Stock Exchange for the years 2016–2020 using a survey designed to identify the e-HRM functions used by companies and which HR functions contribute to e-HRM usage within an organisation. It was found that most companies use e-HRM in at least one to two HRM functions, with the highest digitalisation use found in Payroll and Employee Benefits. These results indicate that HR professionals should work closely with digitalisation and human capital to better understand and subsequently implement technologies in order to fully embrace digital HRM technology.

Keywords: *e-HRM, Human Resource Information Systems, Human Capital, HR Functions*

1. Introduction

Since the early 1980s, researchers have taken seriously studies on the relationship between IT and company performance as well as performance growth. As technology has gradually improved, industry players have adopted more digital resources, including the implementation of electronic human resource management (e-HRM). Although e-HRM is not comparable to human intelligence in terms of efficacy in carrying out certain tasks, there is no doubt that its implementation will have an impact [1]. Organisations must become digital in order to survive and grow in a changing environment; it is, therefore, crucial for the business and organisation to undergo a digital transformation on all levels [2]. This has been a catalyst for change across industries, and the pace of change is accelerating [3]. For instance, while it took

Apple five years to revolutionise the music industry, Airbnb and Uber entirely reshaped the hospitality and transportation industries in less than two years. Digital disruption can occur in a month, but it can take a company and its employees years to adapt effectively to such significant changes in business operations [4]. As machines transition from being useful instruments for production to playing a crucial part in multiple areas of organisational and economic life, the implications of technological breakthroughs and inventions for humans are becoming increasingly complex [4,5]. Work in modern society is driven by pervasive digitalisation and communication technologies, which require constant connectivity, create a requirement for rapid responses and raise a variety of issues regarding work-life balance [6]. Thus, human resource management (HRM) must shift beyond firefighting to plan for a new reality and make

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strategic advances. Instead of focusing solely on short-term difficulties, companies should consider the greater strategic task of moulding the workforce to achieve medium and long-term competitive advantage [4].

1.1. Human Resources Management (HRM)

The twenty-first century's expanding spectrum of issues facing organisations includes intense global competition, environmental challenges characterised by convergence, unpredictability and dynamism, as well as risks to be averted and possibilities to be seized. This compels business organisations to abandon traditional thinking structures and conventional strategic thinking management in favour of the concurrent strategic management of internal and external assets [7,8]. Academic research has shown an association between HRM and the development of important organisational competencies. Although this is theoretically accepted, there has been a delay in support from empirical research [9].

An early and extensively recognised definition of strategic HRM is "the organized arrangement of human resource activities and deployments that are designed to assist an organization in reaching its objectives" [10]. A focus on HRM systems is also crucial for recruitment, motivation, training and managing a workforce that will successfully perform and carry out the organisation's mission. Traditionally, the HRM function has been associated with soft professions but substantial IT skills are required for HRM practitioners to manage the complexity of big data when addressing HRM-related work tasks [11]. In this new era of digitalisation, HR departments must reorganise their human resource requirements and needs in order to achieve competitive advantage and organisational efficiency. Information and communication technologies have altered our day-to-day routines and how we communicate, think and develop new business ideas [12]. Automation has brought a significant shift in the HRM function and e-HRM usage in organisations has greatly increased [13]. For businesses to retain a competitive advantage, it is crucial that they use IT to implement HRM policies and store as well as share information [14]. Before greater IT functionality increased the use of e-HRM apps, HRM relied on computer systems to retrieve and store information [15]. IT has increased the ability of HR departments to work collaboratively and respond more rapidly to shifting circumstances and employee needs [16]. The adoption of technology has transformed HRM operational strategies [17,18] in response to organisations' growing reliance on human capital, ability and talent to establish a sustainable advantage.

1.2 Electronic Human Resource Management (e-HRM)

Two of the earliest examples of "mechanical" HR which have emerged since the creation of computers in 1940 are personnel record-keeping and payroll. Within the next 20

years, the aerospace and defence industries invented various solutions for skill inventories and screening processes [19]. Following the mechanical recording of personnel data, benefits administration and payroll were automated in 1960 [20]. According to Tetz [21], by the late 1960s, it was necessary to base effective HR decisions on a wider range of employee data. This requirement was met in the 1970s when companies with over a thousand employees began deploying contemporary HR systems; by this point, more than half of the major US insurance and banking corporations were already adopting computer systems for HR [19]. The interest in digital human resources expanded in the 1980s as the use of computers for competitive advantage gained greater acceptance [22] and, by then, 40% of organisations had an established system. The term 'HRIS' (Human Resource Information Systems) emerged, defined by Kavanagh et al. [23] as an integrated computer system that enables an organisation to record, change, analyse and exchange human resources data. The term 'e-HR', or electronic HR, was first used to describe digital HR in the 1990s, along with other 'e-' terms, such as e-commerce. Development of e-HR, starting with the publication of basic HR information and continuing through the most complex levels of HR transformation [24]. According to Zafar [25], it is the end user that distinguishes e-HR from HRIS: HRIS is targeted at the HR division, while e-HR covers all employees.

Organisations endeavour to accomplish many objectives through the adoption of e-HRM. The ability of e-HRM to simplify processes in an organisation and reduce the expenses associated with administration is a common argument for its deployment. Since e-HRM removes the 'HR middleman', fewer HR personnel are required and the experts can concentrate more on HR strategy. Furthermore, e-HRM also enhances the tracking and control of HR activities, accelerates transaction processing, and lowers information errors. Consequently, according to Lengnick-Hall et al. [24], e-HRM enhances service delivery. For companies moving toward e-HRM, Ruël et al. [26] outlined four categories of objective: (i) cost savings/efficiency gains, (ii) customer service improvements benefiting both employees and management, (iii) improving strategic methods for HRM, and (iv) facilitating the integration of HR functions through diverse organisational units as well as the entire company.

Operational, relational and transformational HRM are the three types of HRM characterised by Lepak and Snell [27]. Operational HRM is associated with core administrative duties, including managing personnel files and payroll. The second category, relational HRM, focuses on more complex HRM tasks and encompasses the HRM tools that support fundamental business operations, such as selecting and recruiting employees, providing training, managing performance, appraisal and rewarding employees. The third area, transformational HRM, focuses on HRM activities with a strategic component and includes

processes for organisational change, strategic reorientation, strategic knowledge management and strategic competency management.

The desired objectives and organisational outcomes achieved as a result of implementing e-HRM systems in UK organisations were studied by Parry and Tyson [28], who found that these organisations implemented e-HRM initiatives to improve HRM effectiveness, service quality and standardisation, as well as delegating HR responsibilities and shifting HR professionals into more strategic positions. Parry also investigated the potential application of e-HRM as a means of enhancing value for HRM functions when those functions were considered as resources [29]. According to the study, which involved a detailed survey of firms in 12 nations, e-HRM implementation may enable HRM systems to support HRM operations more strategically, improving HRM practices to increase efficiency, enhancing HR service delivery, supporting organisational strategy and creating competitive advantage. The impact of e-HRM services on the performance of organisations in the telecommunications sector was analysed in a 2015 study by Khashman and Al-Ryalat [30], whose findings demonstrated that e-HRM elements – including e-selection, e-recruitment, e-training, e-appraisal and e-compensation – had a positive and noticeable impact on several operational performance indicators, including time savings, cost savings, flexibility and service quality.

There is no question of the ability of technology to transform human resources practices. For more than a decade now, digital possibilities and technology have challenged traditional ways of delivering HRM functions [31]. As the environment changes, companies seek more efficient ways to run their HR operations and this has resulted in the swift development of e-HRM [14,32]. The introduction of e-HRM has offered HR practitioners more strategic and efficient ways of working [33,34]. It should be noted that e-HRM is defined as administrative support through the use of internet technology; its implementation changes HR roles but it should not be considered as an independent function [32,33].

The transformation of organisational strategic HRM is largely influenced by e-HRM systems and how organisations facilitate business conditions such as organisational orientation towards technology in enhancing organisational performance [35]. e-HRM is able to support and provide solutions on organisational flexibility as well as knowledge sharing [16]. Organisations are adopting e-HRM extensively with the goals of achieving strategic benefit [16,36,37], reducing administrative costs and enabling HR practitioners to use real-time information for HRM strategic issues [35]. Furthermore, several organisations that use e-HRM to improve financial performance [31,38,39] are able to

develop strategic HRM direction as well as organisational performance [35]. Due to global access to the web and new cloud-based technologies, organisations are developing innovative strategies for providing HR functionality through utilising big data, metrics and analytics to support HR and manage intellectual capital (IC) [40].

Although the literature generally takes a positive stance on the prospects of e-HRM, experts are increasingly calling for more empirical studies to help conceptualise its adoption and consequences. Additionally, a substantial body of knowledge has accumulated concerning the variables that should be considered when implementing e-HRM. The effects of e-HRM are not always as favourable as is typically believed, and HR departments continue to face obstacles in implementing new technologies: e-HRM initiatives have been shown to deliver at lower levels than predicted [39] and examples of failure continue [42-44]. For instance, Gardner et al. [33] discovered that, rather than releasing valuable time for HR practitioners, the deployment of e-HRM led in practice to the substitution of tech-related duties for administrative duties. Other research shows that HR professionals do not use technology to initiate and support strategic decisions [45], that e-HRM technology is primarily used to support routine administrative HR tasks [46-48] and that line managers experienced mixed results when implementing e-HRM [49]. One complex human dynamic that restricted the application and potential of e-HRM was the need to address user acceptability when introducing new e-HRM systems [50].

2. Method

In the preparation of the survey instrument, data were collected using a two-phase approach. The first stage comprised reviewing the literature [51,52] and the second stage entailed identifying functions within HRM practices. After analysing the functions and definition of HRM, the survey's overall flow was developed and the survey was conducted in accordance with the definitions and role of HRM. The HRM function comprised eight elements: (i) Recruitment, (ii) Selection, (iii) Onboarding, (iv) Training, (v) Performance Management, (vi) Promotion, (vii) Retention and (viii) Employee Benefits, with an additional payroll function identified during the interview phase [53-55]. These elements were then used to determine total e-HRM use in a company's HR function.

Purposive sampling was utilised to identify the sample in this study. Only non-financial companies that trade on the Malaysia Stock Exchange (Bursa Malaysia Berhad) are included in the sample; banks, other financial institutions which have separate financial reporting requirements and companies with incomplete dataset are excluded as the annual report for specific year is unavailable. The final sample for this study is based on 396

public-listed organisations from the Kuala Lumpur Stock Exchange after excluding 13 companies, giving a total of 1,980 company-year observations for the period 2016–2020.

3. Results

3.1. Functions in e-HRM

Definitions of all functions are given below; these elements will all be used to determine overall e-HRM use within companies' HR functions.

- i. Recruitment is “The act of actively seeking out potential job candidates and encouraging them to apply for positions in the organization” [56]. Flippo further describes recruitment as “as a type of rivalry, similar to how companies compete to create, produce, and promote the most exceptional products or services. In the same way, businesses must compete to identify, attract, and recruit the most skilled individuals. Essentially, recruitment is a significant aspect of business.” Recruitment is further defined as “the process that involves identifying sources of potential employees to meet the staffing needs of an organization, and implementing strategies to attract a sufficient number of qualified candidates in order to facilitate the effective selection of a competent and skilled workforce” [57,58].
- ii. Selection is “the act of distinguishing among candidates with the aim of recognizing (and recruiting) individuals who are more likely to succeed in a job” [59]. Dale Yoder further defined selection as a “selection process involves a series of “go” or “no-go” decisions made for candidates, and those who meet the qualifications move on to the next stage, while those who do not are eliminated”.
- iii. Onboarding refers to “The integration of new employees into an organization involves a set of procedures that includes tasks such as providing them with an orientation program and educating them about the organization's structure, culture, vision, mission, and values” [60].
- iv. Training is “the organized procedure by which people learn knowledge and/or skill for a definite purpose” [57,58]. This refers to the educational and instructional activities conducted with the primary objective of aiding members of an organization in obtaining and utilizing the necessary knowledge, skills, abilities, and attitudes for a specific job and the organization. This process is known as a “structured and systematic alteration of behavior through education, guidance, growth, and planned experience,” and it involves enhancing individuals' performance in their current roles while also preparing them for greater responsibilities in the future.” [61]. Training can also be defined as “A

systematic approach to adjusting behavior with the aim of preparing an employee for a job or enhancing their current job performance”, while development refers to “getting an employee ready to enhance their abilities in conceptual thinking, decision-making, and interpersonal skills when dealing with complex structured scenarios.”. [62]

- v. Performance management is defined as “An integrated and strategic method to enhance organizational effectiveness by improving the performance of its workforce, and developing the abilities of both individuals and teams” [63], or as “recognizing, evaluating, and developing the performance of both individuals / teams and aligning performance is in line with the overall objectives of the organization” [64].
- vi. Advancement is “the act of guiding and providing assistance to employees in order to work with maximum effectiveness and efficiency that aligns with the organization's requirements” [65].
- vii. Retention refers to “initiatives taken by management to retain employees within the organization” [66]. Chaminade adds that “An appropriately designed orientation program, regardless of its duration, will improve employee retention”.
- viii. Employee benefits are “primarily intended to ensure, maintain, and increase an employee's income, a benefit that complements their regular salary and provides value to them and their families by materially increases their retirement benefits.” [67]. According to an article from the International Benefits Network, the term “employee benefits” refers to “non-monetary compensation given to employees alongside their wages or salary. This may include a broad spectrum of benefits such as social security, retirement plans, death benefits, medical care, sick leave, long-term care, childcare, tuition reimbursement, housing allowances, company cars, profit-sharing, stock options, severance pay, relocation aid, and discounts on purchases” [68].
- ix. Payroll is a “essential process that every company needs to perform to pay their employees. It involves computing wages, taxes, and dispensing paychecks. This task can be done internally or by outsourcing to a third-party. Additionally, payroll also refers to the roster of employees that a company employs and compensates for their services” [57].

3.2. Results from Survey on e-HRM

Figure 1 shows the tabulation of e-HRM systems used by companies from 2016 to 2020. There are incremental increases in e-HRM usage, especially in payroll and employee benefit functions, with the majority of companies using e-HRM in one or two functions, as shown in Figure 2. The development of empirical models for data analysis and their measurements is discussed in more detail in Section **Error! Reference source not**

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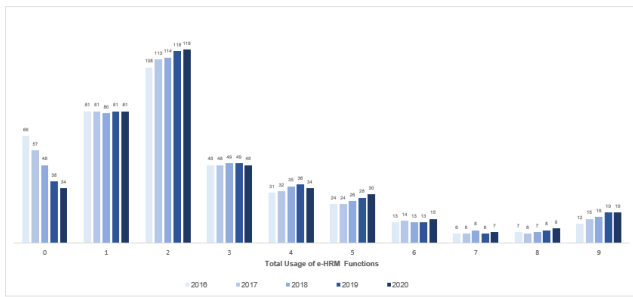


Figure 1 : Tabulation of HRM Functions Utilised by Companies

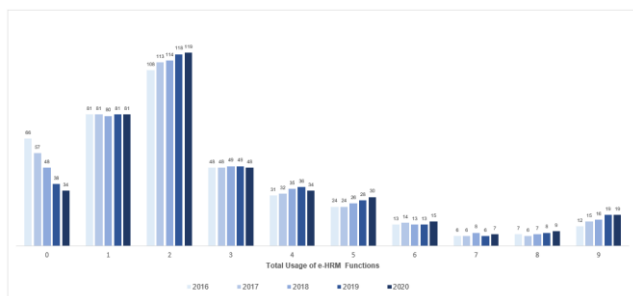


Figure 2 : e-HRM Functions Utilised by Companies

4. Discussion, Implication and Conclusion

4.1. Discussion

The results show an upward trend of companies utilising e-HRM year on year in all HR functions, with the highest usage of e-HRM in the payroll function. This is supported by Mayer [69] who observes that the initial concerns about the dehumanization of the personnel department were counteracted by the positive experiences observed in payroll and record-keeping systems. Payroll and personnel record keeping are two of the first examples of "mechanical" HR since the invention of computers in 1940. The aerospace and defence sectors developed applications for skills inventories and screening within the following 20 years [19] and, in the 1960s, payroll and benefits administration were automated along with employee data [20]. Tomeski and Lazarus [66] reported HR information systems have resulted in faster and more accurate reporting, which has allowed personnel staff to focus on more strategic tasks. The researchers also reported a positive increase in efficiency and effectiveness as well as expressed optimism about the future use of these systems.

In firms where the dominant HR functional capability

is as an administrative expert [71], the goals are likely to be limited to building an efficient administrative infrastructure – including tracking job requisitions, managing employee payroll and benefits programmes – rather than engaging in transformational HR activities such as HR strategy development that better align with product or service strategies, with e-HRM acting as a strategic business partner [72]. HR professionals must acquire the ability to operate new technologies proficiently and be persuaded about the benefits of these novel systems to embrace them [73]. While Hannon et al. [74] reported HR professionals' lack of technical knowledge and skills as problematic, Kossek et al. [75] demonstrated that possessing advanced technical skills may not always be advantageous: often, extensive development periods resulted in e-HRM systems becoming outdated by the time they were fully functional, leading to less satisfaction among proficient users. In general, individuals with greater expertise in computer usage adopted e-HRM systems earlier, but were less enthusiastic about their experience [76].

Further to the specific e-HRM functions used by companies, as shown in Figure 2, there is an increase in companies implementing e-HRM and the majority of companies apply e-HRM to at least one or two functions, with payroll the system in which e-HRM is most commonly used, followed by employee benefits. In view of this trend, it has been observed that the effective adoption of e-HRM in an organisation requires a change in employees' mindsets since it requires them to do their work differently [27,77]. Since e-HRM affects the whole organisation, management and employee support and commitment are essential.

Technology such as e-HRM is, therefore, an essential tool in HRM since it links and integrates the HRM tasks and responsibilities of different actors, irrespective of where they are based, and allows them to execute HRM tasks and responsibilities [31]. Moreover, the end users' involvement is greatly facilitated by the e-HRM system's execution of HR tasks at all levels of an organisation [12,78]. e-HRM systems are used for everyday transactions, employee-related transformational activities and traditional HRM procedures such as training and recruitment. These actions support an organisation's strategic and value-added HR processes and give it a competitive advantage. These contributions could enhance corporate strategy, improve efficiency and develop and deploy HR more effectively [29,37,672].

4.2. Implication

HR professionals should, therefore, work closely with digitalisation and human capital specialists to better understand and implement technologies in order to fully embrace digital HRM technology. In addition, HR

practitioners are responsible for ensuring that the e-HRM system is designed in a way that will support organisational strategies. Managers must focus on how e-HRM will affect HR services and human capital management overall [76]. Thus, currently, e-HRM has the potential to enhance both employee and business performance.

4.3. Conclusion

While, in prosperous times, companies easily justify spending money on systems for employee involvement, recruitment, rewards and training, when confronted with financial challenges, these HR systems are the first to be removed. One way to illustrate HR's significance in a company is through the emergence of the subfield of strategic HR management (SHRM), which is focused on analysing HR's role in assisting business strategy. The focus of HRM varies between organisations; in some, it is on registration and administration, in others on the use of operational HRM tools, and in others still, the focus is predominantly strategic. An e-HRM system is also defined as “the application of HR strategies, policies, and practices in organizations through deliberate and targeted utilization of web-based technology channels.” [26]. Through automated management or transactional tasks, the digitalisation of HRM aims to increase HRM productivity [37].

Notwithstanding the above, some limitations were encountered in the study that suggest possible directions for future research. Firstly, as this study only included companies listed on the Kuala Lumpur Stock Exchange (i.e. Bursa Malaysia), further research could increase the sample size and include small and medium entities (SMEs) in exploratory studies involving in-depth comparative analyses to investigate e-HRM usage across organisational size. Second, since the data collection, which covers 2016 to 2020, was completed, web-based information technology, including artificial intelligence, has become increasingly sophisticated. Future research could explore the relationship between company boundaries and strategy in terms of the more complex and pervasive web-based technologies in the context of technological advancement.

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