# Implementation of Information Technology in Human Resource Management

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***Abstract***

*This research aims to discuss the implementation of information technology in HR management by adopting the theory of Technology Acceptance Model and Diffusion of Innovation. This research is qualitative in nature by reviewing relevant literature. Data collection techniques included listening and recording important information to conduct data analysis through data reduction, data display, and conclusion drawing. The results of this study show that the use of information technology can provide various benefits for HR management, such as increasing efficiency, accelerating the decision-making process, and reducing operational costs. The results of this study are also expected to provide added value in decision making for companies in managing their HR.*

***Keywords****: Implementation, Information Technology, HRM*

## A. INTRODUCTION

In contemporary times characterised by globalisation and the swift advancement of digitalization, information technology has assumed a crucial role in the daily lives of individuals (Ausat, 2023). Information technology plays a critical and strategic role in the operation of businesses (Kraugusteeliana et al., 2022) and (Subagja, 2023). Information technology enables enterprises to enhance their data management efficiency. By utilising database systems and data management

software, it is possible to effectively and precisely organise customer information, stock items, and financial data. Information Technology (IT) plays a crucial role in enabling effective communication and fostering collaboration among various teams and departments within an organisation. The utilisation of electronic mail, instant messaging, and digital collaboration platforms enables personnel to engage in synchronous communication, exchange data, and collaborate efficiently, regardless of their physical location. Moreover, Information Technology facilitates the mechanisation of commercial procedures. The automation of tasks such as inventory management, order processing, and facturation has the potential to enhance efficiency and minimise human error, thereby benefiting businesses. In summary, Information Technology plays a crucial role in the business sector by enabling efficient data management, communication and collaboration, automation of business processes, data analysis, and ensuring information security. The proficient employment of information technology can enhance operational effectiveness, foster ingenuity, and bolster competitiveness for enterprises amidst the contemporary digital landscape. The integration of information technology within the realm of human resource management (HRM) is a crucial necessity, as it has the potential to enhance the optimisation of HR management procedures and augment efficiency and efficacy in the management of human resources (Kamar et al., 2022).

The contemporary business landscape necessitates that companies conform to the advancements in information technology and integrate it into their operational processes (Ausat & Suherlan, 2021). the utilisation of information technology can aid organisations in effectively managing data and information pertinent to human resource management processes, including but not limited to recruitment, selection, employee training and development, performance evaluation, and payroll (Ferine et al., 2023). Moreover, the implementation of information technology can aid organisations in enhancing the communication and collaboration procedures among personnel and departments engaged in human resource management (Subagja et al., 2022) and (Ausat & Peirisal, 2021). Numerous prior research works corroborate the assertion that the utilisation of information technology can aid organisations in their human resource management. (Chauhan & Bisht, 2018) conducted a study on the implementation of Human Resource Management Systems (HRMS) within organisations. The present investigation demonstrates that the implementation of Human Resource Management Systems (HRMS) leads to a noteworthy enhancement in the efficiency and efficacy of HR administration. This improvement is evident in various aspects such as employee data management, recruitment, training, and payroll. According to (Abdullah et al., 2017), the adoption of a Performance Management Information System by organisations can enhance the effectiveness and precision of employee performance monitoring, measurement, and management. Chen and Huang

(2014) conducted a study that investigated the application of Decision Support Systems in the field of Human Resource Management. The present study demonstrates that the implementation of Decision Support Systems (DSS) facilitates Human Resource (HR) managers in making informed and tactical decisions pertaining to recruitment, promotion, and employee development. The aforementioned studies provide evidence in favour of the utilisation of Information Technology within the realm of Human Resources management. It is important to acknowledge that the outcomes of these investigations may be situated within distinct contexts and research populations, thus their application may fluctuate contingent upon the attributes and requirements of the enterprise.

This literature review aims to examine the utilisation of information technology in the context of human resource management. The discourse will centre on the explication of information technology, the management of human resources, and the integration of information technology in the management of human resources. Furthermore, this review of literature will examine the advantages and obstacles encountered when integrating information technology into the realm of human resource management. The rationale behind our prediction is that the implementation of IT systems within organisations can facilitate the automation of several HR management tasks, including but not limited to employee data management, attendance tracking, payroll processing, and personnel administration. This facilitates the enhancement of operational efficiency by diminishing the duration and exertion necessary for said tasks. Conversely, Information Technology (IT) facilitates enhanced gathering and evaluation of employee-related data, encompassing aspects such as job performance, educational programmes, and professional growth. Enhanced availability of this data can enable managers to make judicious and tactical choices regarding staff allocation, advancement, professional growth, and evaluation.

The present study employs two significant theories to examine the subject of IT implementation in HRM. Initially, the Technology Acceptance Model (TAM) will be discussed. The aforementioned theory was formulated by (Davis, 1989) and has since been extensively employed and refined within the realm of information technology. The Technology Acceptance Model (TAM) posits that the adoption and utilisation of technology is impacted by two primary factors: the perception of benefits derived from perceived usefulness and the perception of perceived ease of use. As per the aforementioned theory, the likelihood of users accepting and adopting a technology is contingent upon their perception of its usefulness in facilitating their tasks and work, as well as its ease of use. The Technology Acceptance Model (TAM) can be utilised to comprehend the adoption and utilisation of new information technology (IT) systems by human resources (HR) employees and managers in the context of IT implementation in HR management. In the context of implementing an

IT-based human resource management system, scholars may employ this theory to examine employees' perspectives regarding the anticipated advantages of utilising the system and the degree to which the system is perceived as user-friendly.

Additionally, there exist other pertinent theoretical frameworks, including the Diffusion of Innovation Theory (DOI) postulated by (Rogers, 1995). The present theory posits that the assimilation of novel technology or innovation is subject to the sway of diverse factors, namely relative advantage, compatibility, complexity, observability, and trialability. The application of DOI Theory within the realm of IT implementation in HR management can provide valuable insights into the determinants that impact the assimilation and approval of novel technological advancements by HR personnel and supervisors. Scholars have the ability to examine the degree to which information technology (IT) systems utilised in human resources (HR) management confer comparative advantages to users, their compatibility with the values and requirements of an organisation, and their ease of observability and feasibility for preliminary testing prior to complete implementation. The utilisation of these two theories can furnish a valuable structure for investigating the implementation of information technology in human resource management. Furthermore, they can facilitate comprehension of the determinants that impact the adoption, utilisation, and efficacious implementation of IT systems within the realm of HR management.

The purpose of this literature review is to enhance comprehension regarding the impact of information technology on human resource management. Additionally, this review aims to offer perspective on the obstacles and possibilities associated with the integration of information technology in human resource management. Moreover, it is anticipated that the provision of additional value in the decision-making process for organisations with regard to the management of their human resources will be forthcoming.

## B.  LITERATURE REVIEW

Human Resource Management (HRM) is a process of managing human resources that aims to achieve organisational goals. In this digital era, Information Technology (IT) is a key factor in HRM management (Ausat, 2022). IT can help organisations manage employee data, conduct performance analysis, and improve the efficiency of HR processes (Peeters et al., 2020); (Rustiawan, Ausat, et al., 2023) and (Anwar & Abdullah, 2021). In this paper, a literature review related to IT implementation in HRM will be discussed.

Human Resource Management Information System (HRMS) is a system that manages employee information and HR processes. HRMS can help organisations in storing employee data,

conducting performance analysis, and improving the efficiency of HR processes. Studies conducted by previous researchers also show that HRMS has a significant influence on HRM performance (Lee et al., 2019); (Afifah & Sary, 2020); (Algwizi & Habtoor, 2020) and (Baur et al., 2018). One example of the implementation of HRMS is by using Employee Self Service (ESS) and Manager Self Service (MSS). ESS is a system that allows employees to access their personal information such as personal data, salary, and work schedule. Meanwhile, MSS allows managers to perform employee management such as conducting performance evaluations, providing appraisals, and managing leave applications. Studies conducted by several researchers show that ESS and MSS can increase employee satisfaction and accelerate HRM processes (Garengo et al., 2022); (Nguti & Mose, 2021); (Margatama, 2017) and (Hamid et al., 2022).

The use of IT can also help HRM in conducting Big Data analysis. Big Data analysis can help HRM in identifying employee trends, behaviour, and potential. Studies conducted by several researchers show that Big Data analysis can help HRM in predicting employee departure and improving employee retention (Yahia et al., 2021); (Singh et al., 2022) and (Jia & Yuan, 2018).

In addition, there is a very important aspect when talking about information technology, namely social media (Kluemper et al., 2016). The use of social media can also help HRM in recruiting employees (Tarigan et al., 2023). Social media such as LinkedIn can help HRM in finding employees who have skills that match the needs of the organisation (Ruparel et al., 2020). A study conducted by several researchers show that the use of social media can help HRM in improving the efficiency of the employee recruitment process (Hosain, 2021); (Jeelani & Hussain, 2023) and (Dutta, 2018).

In essence, IT implementation in HRM can help organisations improve the efficiency of HR processes, increase employee satisfaction, and improve employee retention. HRMS, Big Data analysis, and the use of social media are examples of IT implementation in HRM that can help organisations in achieving their goals. Therefore, organisations should consider implementing IT in their HRM to improve HRM performance and achieve organisational goals.

The Technology Acceptance Model (TAM) is a theoretical framework utilised to comprehend and elucidate user acceptance of information technology. The theory, which has gained significant traction in the realm of information technology acceptance, was originally formulated by (Davis, 1989). The Technology Acceptance Model (TAM) centres on two primary determinants that impact the adoption of information technology: perceived usefulness and perceived ease of use. Per this theoretical framework, an individual's likelihood of embracing and integrating information technology into their professional and personal spheres is contingent upon their perception that the

technology will yield substantial advantages and is user-friendly. The correlation between the adoption of information technology and human resources management can be described as follows:

1. Acceptance and adoption of information technology: The Technology Acceptance Model (TAM) facilitates comprehension of the variables that impact the reception and implementation of information technology among users, particularly within the realm of human resources management. The intention of users to adopt information technology in HR management processes is influenced by their perception of the benefits and ease of use associated with the technology (Harahap, Kraugusteeliana, et al., 2023).

2. Effectiveness of information technology use: The integration of information technology within the realm of human resources management has the potential to enhance the efficacy and efficiency of HR processes. The likelihood of users, such as HR managers or HR staff, accepting and adopting information technology is positively correlated with their perception of its efficacy in enhancing task performance (Gadzali et al., 2023).

3. Cultural and behavioural changes: The integration of information technology within human resources management frequently necessitates alterations in organisational culture and behaviour (Rustiawan, Gadzali, et al., 2023). The Technology Acceptance Model (TAM) can facilitate comprehension of the impact of users' perceptions regarding the advantages and ease of use of information technology on their attitudes and intentions to modify behaviours and enhance human resource management procedures.

Through the lens of the Technology Acceptance Model (TAM), comprehending the determinants that impact the acceptance and adoption of information technology can enable organisations to formulate more efficacious strategies for implementing information technology within the realm of human resource management. This, in turn, can enhance the probability of successful implementation.

The Diffusion of Innovation (DOI) theory is a theoretical framework that elucidates the process by which novel technologies or innovations disseminate and gain acceptance among members of a given society or user group (Ausat, Permana, et al., 2023). The aforementioned theory was formulated by (Rogers, 1995) and has since been extensively employed to comprehend the mechanism of adoption and dissemination of innovations in diverse settings, such as the integration of information technology. As per the theory in question, the process of adopting and disseminating innovations takes place in a series of stages that encompass different societal groups, including innovators, early adopters, early majority, late majority, and laggards. The various groups exhibit distinct characteristics and attitudes towards innovation, and the efficacy of innovation adoption

hinges on its capacity to satisfy the demands and preferences of its users. The correlation between the integration of information technology and human resource management can be described as follows:

1. The spread of information technology: The theory of Diffusion of Innovation is a useful tool for comprehending the dissemination of information technology within the realm of Human Resources management. The incorporation of information technology within the realm of human resource management necessitates the consideration of diverse user cohorts and efficacious tactics to promote the assimilation of such technology among these cohorts (Muchtar et al., 2002).

2. The influence of user groups: The aforementioned theory acknowledges the significance of user groups in the process of adopting innovation. Within the realm of human resource management, various groups, including HR managers, HR staff, and employees, possess distinct responsibilities in regards to the integration and utilisation of information technology (Sutrisno et al., 2023). It is imperative to take into account the perceptions, attitudes, and requirements of these cohorts when devising strategies for the implementation of information technology.

3. Communication and social interaction: The present theory underscores the significance of communication and social interaction in the dissemination of innovations (Saputra et al., 2023). The successful integration of information technology in Human Resource Management necessitates proficient communication and the creation of a supportive social environment to surmount obstacles and promote the acceptance of information technology among its users. The process at hand is significantly impacted by various factors, including but not limited to trust, social norms, and inter-individual influence.

The comprehension of the principles of Diffusion of Innovation theory can enable organisations to formulate more efficacious strategies for the implementation of information technology in the realm of HR management. By gaining a deeper comprehension of the diffusion and adoption of innovations among users, entities can enhance the likelihood of efficacious integration of information technology and optimise its advantages in the domain of human resource management.

## C. METHOD

This study saves time and money by not sending researchers out into the field to collect data, and instead relies on a systematic evaluation of the existing literature in the topic. Information technology and human resource management articles were culled from the web and back issues of scholarly journals using search terms pertinent to this discussion. While constructing a reliable reference list, authors are not need to restrict themselves to certain online resources like Emerald Insight, Research Gate, or Elsevier journal portals. The flexibility, though, is greater. The authors

narrowed their keyword search of the publications to the three core topics of information technology frameworks, management, and human resources in order to maintain focus on these central themes. Journals, articles, and other publications published between 2016 to the present were included in the search. We used keywords to search multiple online databases for relevant references. However, only the most pertinent articles, journals, and publications linked to IT, HR management, and company implementations will be used. We improvised 73 citations for this piece. This study was qualitative. Listening and collecting relevant data is one technique to obtain data for the literature review. Reduce data volume, diversity, and complexity to get insights and aid inference. Data minimization is necessary due to its bulk and complexity. This filtering phase helped us identify the most useful facts for our goal. We obtained 80 references. However, 73 followed this initial surgery. Next, data presentation. After data reduction, this phase organises the remaining data for analysis and conclusions. Field notes tell the story of this data. This data presentation will simplify data organisation by relationship. Data inference concludes. This final phase of qualitative data analysis references the earlier analytic objectives. We use patterns, trends, and anomalies to draw conclusions and create solutions at this stage. We trust our sources. This is a valid conclusion to help understanding.

## D. RESULT AND DISCUSSION

The implementation of information technology in human resource management can provide significant benefits to organisations (Ausat, Al Bana, et al., 2023). In employee management, information technology can be used in several aspects such as recruitment, selection, employee development, payroll, and performance management (Muchtar et al., 2022); (Silva & Lima, 2018) and (Premnath & Arun, 2019). In recruitment, information technology can assist organisations in disseminating job vacancies online and automating the initial selection process by using web-based applications that can reduce the time required to check applications (Nikolaou, 2021) and (Owusus-Ansah & Nyarko, 2014). In addition, information technology can also be used in conducting remote job interviews through video conferencing (Irani, 2019); (Chapman & Rowe, 2002); (Sedgwick & Spiers, 2009) and (Thunberg & Arnell, 2022). In employee development, information technology can be used to provide online training, virtual classes, and teaching materials that can be accessed anytime and anywhere (Sudarsana et al., 2019). In addition, information technology can also be used to measure the effectiveness of training and employee progress (Marler et al., 2006) and (Sulistyawati & Bahruni, 2021). In payroll, information technology can automate the payroll process thereby minimising human error in salary calculation (Elsi et al., 2022) and (Wiguna & Humdiana, 2017).

Furthermore, information technology can also help in keeping employee records and salary data integrated with the financial system (Escobar-Pérez et al., 2016). Not only that, in performance management, information technology can be used to monitor employee performance in real-time through online performance management systems (Li et al., 2022) and (Awan et al., 2020). This allows managers to provide feedback and rewards in a quick and timely manner. However, the implementation of information technology in human resource management also has some challenges, such as difficulties in system integration, high initial investment costs, and data security.

The implementation of information technology in human resource management has become a topic that attracts the attention of researchers and practitioners. Information technology provides convenience and efficiency in human resource management, but it also has challenges in its implementation. One of the main challenges is difficult system integration (Ben Moussa & El Arbi, 2020). Most organisations have different HRM systems which makes system integration difficult (Ali Quaosar & Rahman, 2021). It requires great effort and high investment costs to integrate these systems so that they can function effectively and efficiently.

Another challenge is the high initial investment cost. The implementation of information technology in HRM requires considerable investment costs, especially in purchasing software, hardware, and employee training (Ausat et al., 2022) and (Kraugusteeliana et al., 2022). However, these investment costs can be offset by long-term benefits such as operational efficiency, cost savings, and increased productivity (Ausat & Suherlan, 2022). In addition, data security is also a challenge in the implementation of information technology in HRM. Employee data includes personal and confidential information, so it must be kept safe from being misused or stolen by unauthorised parties. Therefore, organisations must ensure that the HRM system in use has adequate security features. However, despite the challenges in its implementation, information technology remains the right choice in improving human resource management (Alsaadat, 2019) and (Ayodya, 2020). The implementation of information technology can assist organisations in improving efficiency, increasing productivity, improving employee satisfaction, and reducing operational costs (Wanof & Gani, 2023).

The takeaway is that the implementation of information technology in human resource management can provide significant benefits to organisations, such as operational efficiency, cost savings, increased productivity, and improved employee satisfaction. However, the implementation of information technology also has some challenges such as difficult system integration, high initial investment costs, and data security. Therefore, organisations should consider carefully before deciding to implement information technology in HRM.

Moreover, empirical evidence has demonstrated that the utilisation of IT within organisational HR management plays a crucial function in the contemporary digital age (Harini et al., 2023). The utilisation of information technology can aid organisations in diverse facets of human resource management, encompassing recruitment, employee growth, performance evaluation, personnel administration, and overall management of employee information. The incorporation of IT in HR management has the potential to yield numerous advantageous outcomes for both organisations and their workforce (Delaney & Huselid, 1996).

The Technology Acceptance Model (TAM) is a theoretical framework that can be employed to comprehend the significance of IT implementation in HR management. The theory posits that the adoption of technology by individuals is contingent upon two primary factors: perceived usefulness and perceived ease of use. Within the realm of human resources management, the implementation of information technology ought to furnish employees with perceived advantages in the execution of their duties and facilitate user-friendliness (Hamid et al., 2022). The implementation of an IT system for employee attendance management can enhance administrative efficiency and alleviate manual workload for employees within companies.

Moreover, the theory of Diffusion of Innovation holds relevance in the sphere of IT implementation within the domain of corporate Human Resource management. The aforementioned theory posits that the process of technology adoption by individuals or organisations encompasses several distinct phases, including but not limited to knowledge acquisition, persuasion, decision-making, implementation, and confirmation. The implementation of IT in corporate HR management necessitates the process of innovation diffusion, which encompasses the involvement of users, including HR managers and employees. In this instance, it is crucial for organisations to effectively convey the advantages and practicality of integrating information technology into human resources management to end-users, while also furnishing sufficient assistance during the implementation and utilisation phases of the technology (Diawati et al., 2023). Over time, the effective integration of information technology in human resources management has the potential to establish a work environment that is characterised by enhanced efficiency, transparency, and innovation. The implementation of IT in enterprise HR management yields significant benefits, which include:

1. Operational efficiency: The implementation of IT has the potential to enhance the efficiency of HR management in several areas, including but not limited to employee recruitment, salary processing, personnel administration, and performance management. The implementation of automation systems and centralised databases has the potential to mitigate human errors and expedite previously laborious procedures (Madduri et al., 2010).

2. Better decision-making: By effectively managing data and information through the use of information technology, human resource managers can enhance their decision-making process by relying on more informed and evidence-based approaches. The utilisation of employee performance, training, absenteeism, and career development data can facilitate the analysis of patterns, recognition of developmental requirements, evaluation of training programme efficacy, and enhancement of decision-making processes pertaining to comprehensive employee management (Az-zaakiyyah et al., 2022) and (Nur'aeni et al., 2022).

3. Employee development: The incorporation of IT in HR management facilitates the provision of efficient employee training and development opportunities for organisations. Learning management systems that are based on information technology have the capability to offer convenient access to training materials online, as well as monitoring and assessing the progress of training outcomes. Furthermore, IT serves as a means to facilitate effective communication between employees and managers, thereby promoting ongoing feedback and fostering the enhancement of individual skill sets (Harahap, Ausat, et al., 2023).

4. Improved communication and collaboration: Information technology enables the facilitation of communication and collaboration between human resources teams and employees. The implementation of IT systems facilitates the accessibility of crucial information, company policies, and resources required for employees to effectively execute their responsibilities (Harahap, Sutrisno, et al., 2023). In addition, the utilisation of collaboration technologies, such as cloud-based platforms and online communication tools, facilitates effective collaboration among teams situated in disparate geographic regions.

5. Better employee data management: The integration of information technology in human resources management enables organisations to more effectively oversee personnel information (Touriano et al., 2023). It is possible to securely store personal data, employment history, training records, and performance evaluations in a centralised manner. Efficient management of data facilitates prompt and precise retrieval for the purpose of generating reports, adhering to regulatory requirements, and making informed decisions related to workforce strategy.

Within the framework of the Technology Acceptance Model (TAM), the deployment of IT in corporate HR management ought to be predicated on the recognition that IT must furnish employees with perceived advantages, including but not limited to streamlined access to information, decreased administrative workload, and heightened work productivity. Furthermore, it is crucial to acknowledge and tackle possible obstacles to the adoption of technology, such as apprehensions regarding privacy infringement or reluctance towards novelty.

The Diffusion of Innovation theory posits that the implementation of IT in HR management is a multi-stage process that involves adoption. In this regard, it is imperative for the organisation to effectively communicate the advantages and applications of IT implementation to users, while also providing sufficient support during the implementation and utilisation phases of the technology. The implementation of IT in HR management has the potential to foster a culture of innovation and promote the adoption of technology throughout the organisation.

The utilisation of IT in corporate HR management plays a significant role in enhancing operational effectiveness, facilitating informed decision-making, promoting employee growth, fostering communication and collaboration, and improving data management. The utilisation of TAM theory and Diffusion of Innovation theory can facilitate the strategic planning, execution, and administration of IT implementation in the domain of HR management for companies. During the process of IT implementation, it is imperative for companies to conduct a comprehensive needs analysis to identify areas where IT can offer substantial benefits in the management of human resources.

**CONCLUSION**

The literature review pertaining to the integration of information technology in human resource management reveals that the utilisation of such technology can yield several advantages for human resource management. These benefits include heightened efficiency, expedited decision-making, and decreased operational expenses. Information technology tools that can be utilised in the context of human resource management encompass human resource information management systems, performance management applications, and e-learning platforms. The integration of information technology in the domain of human resource management may present certain obstacles, including but not limited to inadequate technical proficiency among staff, concerns pertaining to the security of data, and opposition to alterations. Consequently, a meticulously planned approach is imperative in the execution of information technology within the realm of human resource management. This includes initiatives such as employee training and the establishment of rigorous data security protocols. The literature review recommends that organisations should thoroughly evaluate the advantages and disadvantages of implementing information technology in their human resource management practises. A well-defined and all-encompassing implementation strategy is imperative, which should comprise of employee skill enhancement, stringent data security protocols, and robust managerial backing to encourage the adoption of information technology in the domain of human resource management. Two pertinent theoretical frameworks in this particular context are the

Technology Acceptance Model (TAM) and the Diffusion of Innovation. The Technology Acceptance Model (TAM) posits that an individual's adoption of technology is dependent on their perception of its usefulness and ease of use. Hence, it is imperative for organisations to ensure that the implementation of information technology (IT) yields perceived advantages to their workforce and facilitates ease of use. Furthermore, the Diffusion of Innovation theory places significant emphasis on the necessity of proficient communication and support during the implementation of IT, alongside fostering an innovative culture and promoting the broader adoption of technology within the organisational context.

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