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Digitalisation and Human Resource Management

Systematic Literature Review and Future Research Direction

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ABSTRACT :

Technological advancement and dependency on technology for better and competitive decision-making have resulted in a digital transition of organisations. Different organisations have adopted the technology in different ways, which reflect their performance and outcomes. Considering its role and importance, various studies have been conducted using primary and secondary data to assess the impact of digitalization on human resource management. This study aims to understand the adoption and implementation of digitalisation in human resource management and systematically analyse the literature based on these empirical research studies. The reason for considering empirical studies is to gather first-hand information and explore evidence based on the actual experience of respondents.

To conduct the research, a systematic literature review methodology is selected. To carry out the systematic literature review, there are different protocols and frameworks, for this study PRISMA framework is adopted. The selection criteria included research paper publication date (2015-2024), language (English), discipline (Management and Business Studies), and source (journal). Furthermore, articles were searched through the Scopus database by using the search strings and using different operational terms. It helped in extracting forty-seven research articles that met the selection criteria. A systematic literature review was conducted on these articles, which provided valuable insights into the digitalisation of human resource management.

The analysis conducted produced a few key themes based on the context and areas in which human resource management digitalization has been discussed. First, the digitalisation of human resource management is discussed to understand the ways it is digitalized. Secondly, studies have provided evidence of the changes taking place within the system of human resource management. Moreover, the impact of digitalization on human resource management operations has been studied. Studies have also explored the impact of digitalisation on personnel and employees. Moreover, the studies have explored the impact of digitalization on other departments.

Based on the facts and evidence gathered, discussion is made and a conceptual framework is developed. Moreover, the conclusion is drawn to the study by highlighting the contribution of this study. Some key limitations have been addressed. Lastly, suggestions are made for future studies based on observations made.

KEYWORDS: Human Resource Management, Digitalisation, Human Resource Specialist, Big Data, Data Management

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1 Chapter 1: Introduction

Technological advancements and changes significantly impacted organisational activities such as data, artificial intelligence, blockchain, and many other technologies that act as enabler forces of work (Yu & Jlnajun, 2020). Considering its importance and rapid adoption, organisations are pushed to alter their business models to harness changes in their operations to cope with the changes in the digital era (Zhang & Chen, 2024). Digital transformation has become a fundamental part of an organisation's strategy and has affected every department (Heavin & Power, 2018). Mosca (2020) mentioned the significant influence of digital development on consumer behaviour and expectations. Considering these changes, businesses have amended their business model to ensure sustainability and stay relevant today.

The rapid adoption and diversification of digital tools are also somehow associated with the COVID-19 pandemic outbreak, which resulted in significant changes in business operations and promoted the adoption of digital tools in routine operations (Yu & Jlnajun, 2020). Digitalisation also significantly impacted the human resource management systems (Schmid & Pscherer, 2021). The interaction between human resources and data or information has also significantly evolved. Different activities related to human resource management, such as recruitment, evaluation, performance, career development, and appraisal, are affected by various digital technologies (Mosca, 2020).

The digitalisation of human resource management has been witnessed within and across borders. Organisations have managed to convert their traditional and manual ways of doing things digitally by using different digital tools and gadgets. This not only affected the performance but also positively impacted the cost incurred (Strohmeier, 2020). Along with many benefits, one of the advantages of digitalization of human resource management is related to the training of the employees and management. It has helped to train people from anywhere in the world, which has led to increasing the capabilities and competencies of employees. Technology is found as a powerful tool that has significantly transformed the ways of doing things with efficiency and effectiveness (Maatman, 2006). The decisions and choices made by the organisation are

linked to contemporary concepts such as electronic communication, human relationship management, and digital business.

1.1 Problem Area

Researchers have explored the adoption of digital technologies in the human resource management system (Zhang & Chen, 2024; Vardarlier, 2020). Studies have revealed that human resource management has significantly impacted the efficiency and effectiveness of activities (Mosca, 2020). Pantelidis (2019) indicated that the digitalisation of human resource management has affected the planning and decision-making process within the organisation. They added that organisations are directed to use data and information to make strategic decisions that improve their performance (Pantelidis, 2019). Furthermore, Halid, Halim, and Ravesangar (2022) added that the availability of the data and the ability to process the data have significantly impacted the outcomes the organisations acquired. Significant outcomes have been witnessed, from the competitive advantage to the sustainability of the business.

Thite (2022) added that the digitalisation of human resource management improved the systems and provided opportunities to enhance the organisation's productivity. From the digital monitoring of attendance and productivity, each of them is significantly affected by digitalisation. In today's world, the organisation's activities and operations are transformed into digital actions, whether it is handling employees' performance, marketing goods, or managing production (Maatman, 2006). The human resource department is also transformed by introducing digital tools for communication, performance management, appraisal, and compensation.

However, despite the numerous studies conducted in digitalisation and human resource management, there is an immense need to structure and integrate the extensive empirical literature. This is because various studies are being conducted on digitalisation, but they are focused on understanding its adoption and impact on sustainability and other factors (Thite, 2022). Therefore, to address this problem, a systematic literature review

is conducted. It helped structure and integrate the studies and identify opportunities for future studies.

1.2 Purpose and Significance

This study aims to understand the adoption and implementation of digitalisation in human resource management and systematically analyse the literature based on these empirical research studies. This helps in understanding the existing knowledge and structure of the literature to understand what is being explored and what could be explored in the future. The analysis of the past studies shows that human resource management has been studied in the past. However, these studies look into different aspects or dimensions of digitalisation and its impact on the organisation. This systematic literature review will produce summarised findings with significant theoretical and practical implications.

From a theoretical perspective, the findings can significantly contribute to the literature and provide areas or identify gaps to address in future research. Furthermore, from a practical perspective, the findings will compare and contrast different evidence from empirical research that will provide the most suitable strategies for the organisations.

1.3 Research Question

Based on the identified problem area, purpose, and significance, the following research questions are developed to address them.

RQ1: How has digitalisation been defined in the literature in the context of human resource management?
RQ2: How has the digitalisation of human resource management practices affected organisations?

RQ3: What gaps in the existing literature must be addressed in future research?

1.4 Structure

This thesis is distributed into five chapters. Chapter 1 presents the introduction to the research problem. It includes a discussion of the research problem, the purpose of the research and its significance, and the research questions. Chapter 2 presents the systematic literature review methodology. It discusses the protocols and criteria used for the collection of the data. Chapter 3 presents the theoretical analysis of the discussion on the findings made. It provides outcomes of the systematic literature and is distributed into various sections or chapters to help understand the research problem. Chapter 4 presents the analytical discussion of the findings with a conceptual framework. Lastly, Chapter 6 presents the study's contribution, limitations, and recommendations for future studies.

2 Chapter 2 – Research Methodology

This chapter presents a discussion of the study's research methodology. Research methodology refers to the tools, methods, and techniques selected for collecting and extracting the data, its analysis, and ways of interpreting the findings. A systematic literature review methodology has been chosen to execute this research. Considering the availability of extensive research in the context of the research problem, this methodology helps to identify what is already known and propose potential areas for further research by identifying potential gaps.

2.1 Systematic Literature Review

Systematic literature review uses systematic methods and techniques for collecting and synthesising past studies' findings linked to clearly developed questions (Mohamed Shaffril, Samsuddin, & Abu Samah, 2021). Denyer and Tranfield (2009) stated that the systematic literature review helps compare and understand the existing theoretical knowledge of the research problem. Siddaway, Wood, and Hedges (2019) added that systematic literature reviews systematically evaluate extensive research studies to summarise and conclude the existing body of research.

Paul, Lim, and O'Cass et al. (2021) defined systematic literature review as adopting predefined and strict scientific methods' set to focus, assess, and evaluate the research problem by combining and comparing the findings of the research articles. This systematic literature review is based on a usage-specific set of tools and specific criteria to select the articles to review; it differs from the standard literature review. Rojon, Okupe, and McDowall (2021) provided a set of rules and methods that guide the conduction of the systematic literature review. The systematic literature review aims to find what is already known and reviewed by experts. This is important because the researchers carry extensive literature, and it is impossible to review all of them for empirical research. Paul

et al. (2021) argued that a systematic literature review helps the research summarise the existing knowledge.

Siddaway, Wood, and Hedges (2019) stated that the systematic literature review is conducted to identify, assess, and summarise the previous findings of experts and academic scholars. The systematic literature review benefits the existing body of knowledge and future researchers by giving them an idea regarding the existing information and potentially exploring the research gaps. Paul et al. (2021) added that a systematic literature review also benefits from comprehensive and contrasting facts, which help to add value and provide information from different perspectives.

The systematic literature review is an appropriate and significant method to enrich the literature (Paul et al., 2021). The quality of the research conducted and the thoroughness of the findings help to explore and find answers to the specific research questions from the existing studies. The reason for opting for the systematic literature review for this study is the availability of numerous studies, each of which has been conducted from a different perspective. Therefore, it is believed to provide a conclusion that highlights the facts known and provides a direction for future research based on the findings made in the existing literature.

2.2 Research Tool, Framework, and Protocol

Sarkis-Onofre, Catalá-López, Aromataris, and Lockwood (2021) stated that a systematic literature review incorporates specific protocols that provide particular research processes. These protocols are embedded in various frameworks that extract relevant papers from the database. These protocols offer particular selection criteria (inclusion and exclusion) for the selection of documents to review. These criteria are set out based on the research aim and purpose. Sarkis-Onofre et al. (2021) added that selection criteria help to eradicate subjectivity and biases from the selection process. It also helps to ensure the study's replication.

Siddaway et al. (2019) added that the frameworks help to summarise the findings. There are many frameworks, but in this study, the most common frameworks are considered. It is essential to identify a framework that could help extract the paper and align it with the researcher's analytical and technical skills. Moreover, the tools and frameworks are also crucial to have a systematic method to extract a paper.

Different disciplines have different research magnitudes. According to an observation, medical and social science studies have the most research articles. Therefore, due to the extensive literature, it is essential to carry out a systematic literature. It helps to explore what is already known and provides direction for future studies (Hiebl, 2023). However, to carry out the systematic literature, there is a need to follow some frameworks and have specific skills within the researchers to achieve better and appropriate research outcomes.

Another commonly used framework is the PICO framework, which stands for Population/Problem, Intervention, Comparison, and Outcome. This is a complete framework from the beginning of the research, which forms the questions and concludes the systematic literature review findings (Frandsen, Nielsen, Lindhardt, & Eriksen, 2020). This study is followed to conduct a systematic literature review that follows a particular series of steps, as shown in Figure 2.1.

Systematic Literature Review Steps	
1	Research question formulation
2	Establishment of inclusion and exclusion criteria for the review
3	Relevant literature search
4	Evaluation and selection of studies
5	Recording the data
6	Presentation of results
7	Interpretation of results

Figure 2.1: Steps in Systematic Literature Review

The purpose of developing protocols is to facilitate and ease the selection and extraction process of research articles; the quality of Reporting of Meta-Analysis was presented in 1996. It was later known as the Preferred Reporting Item for Systematic Reviews and Meta-Analyses (PRISMA). This framework includes all relevant and important principles that help extract and find the articles for the meta and systematic papers analysis (Sarkis-Onofre et al., 2021). PRISMA consists of 27 checklists that are expected to be fulfilled to select specific documents. Furthermore, a flow diagram is shown in Figure 2.2, which shows the four stages of following the framework. It is discussed in detail in the next section.

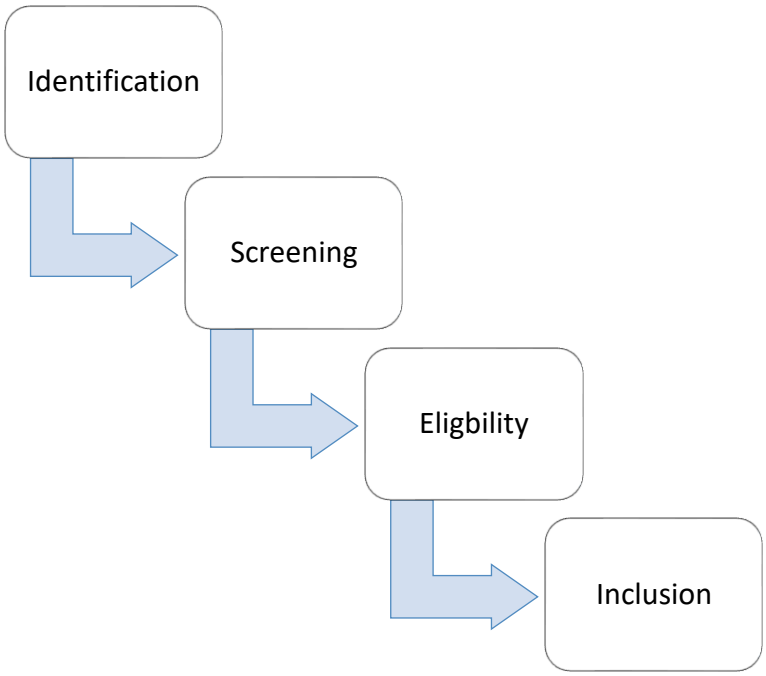

Figure 2.2: PRISMA Protocol Flowchart Diagram

2.3 Literature Screening Process

PRISMA protocols are followed to conduct the screening and extraction of the articles. The PRISMA protocols are followed in a series of stages, as shown in Figure 2.2. It showcases how specific and rigid rules and protocols are set to identify the research articles relevant to the research problem. Figure 2.2 shows four stages of PRISMA protocols, which are required in a series to determine the specific papers based on inclusion and exclusion criteria (PRISMA, 2020).

Identification is the first stage of the PRISMA framework. Research articles with similar terms and keywords related to the research questions are identified at this stage. The second stage is screening, where articles are filtered based on specific strict rules. The third stage is eligibility, where the articles meeting the inclusion criteria and purpose of

the articles are shortlisted. The fourth and last stage is inclusion, where, after careful screening and shortlisting, the final set of papers is selected to carry out a systematic literature review.

Each stage is somehow linked with the researcher's ability to identify the proper criteria to select the papers. This is important for the researcher as it helps to identify and choose papers that could contribute to the literature. Furthermore, technical operations or commands such as AND, OR, and NOT are used to find the relevant papers. There are different steps to carry out the systematic literature review linked with the PICO framework. Figure 2.2 shows the series of steps that have to be taken to conduct a systematic literature review.

2.4 Search Process

2.4.1 Publication Selection Criteria

The selection criteria for the research papers were related to the research questions. The purpose was to identify studies conducted in the context of digital tools in human resource management. PRISMA protocols were followed, and the Scopus database was used to select the data. The steps shown in Figures 2.1 and 2,2 were followed to identify and select papers for analysis. The following criteria were used to choose the research articles:

1. **Year**: The articles' publication date is selected between 2015 and 2024. The reason for considering this year is the nature and volume of the research. The concept of digitalisation has remained under discussion for years, but organisations have recently digitalised their human resource operations. Furthermore, after COVID-19, it has gained more attention. Therefore, the selected range helped in

looking at five-year research studies prior to COVID-19 and five-year research studies post-COVID-19.

2. **Language**: The articles must be in English.
3. The selection was limited by using the following filters:
    a. Subject Area: Business. Management and Accounting
    b. Document Type: Article
    c. Source: Journal
    d. Publication Stage: Final

The exclusion criteria for the articles were as follows:

1. Articles published before 2015 were not part of the systematic literature review.
2. Articles in a language other than English were excluded.

The Scopus database provided many research articles using the above filters and an abstract of the articles. The reason for considering Scopus over others is that it is considered the primary database for systematic literature reviews. It has a wide range of multidisciplinary contents, high-quality and peer-reviewed articles, and advanced search capabilities that help to filter and export the data for carrying out an extensive systematic literature review. Furthermore, keywords ensure that the articles related to the research questions are found.

2.4.2 Search string

Different keywords were used to find papers meeting the systematic literature review selection criteria. The keywords used were to be searched in the title and abstract. The keywords are categorised into two groups. The first group included keywords: “human resource management”, “HR management”, and “HRM”. The second group included keywords: “Digitalisation”, “Digital”, “Big Data”, “Digitalise”, “Digital Tool”, and “Digital Technology”. Between group one and group two the terms AND and OR, these keywords

were used with quotation marks. The search was carried out by using one keyword from group one and conducting searches along with all keywords in group two one by one. This helped in extracting the maximum research articles in the selected period. This technique is used to extract articles that have the same term within the articles. After repeating the process and doing the review, 108 articles were selected and exported from the Scopus database to further analyse and find if they are relevant to the purpose of the research. This is because usually the keywords appear in the title and abstracts, but the purpose of the study is different. This is why further screening was carried out and the final selected articles were systematically reviewed.

2.4.3 Evaluation and Selection of Studies

The extraction stage started after setting out the criteria and setting up the filter. In the last three stages of PRISMA protocols, articles are extracted and reviewed for the systematic literature review. Research articles were exported into Microsoft Excel to extract articles. The abstracts were reviewed, and one that lacked relevancy was dropped. The selection focused on identifying papers with human resource management focused on identifying digital transformation studies and tools. At this 48 articles were shortlisted. The papers were reviewed individually after the critical analysis and extraction of articles. At this stage, seven articles were dropped because of lack of access. After completing the last three stages of the PRISMA protocol, the PICO framework was deployed. According to this framework, articles are reviewed in detail, similar and contrasting facts are found, and findings are drawn based on observations.

2.5 Limitations

The systematic literature review analysis provided valuable information by conducting a systematic analysis and exploring the known facts. Despite its numerous benefits, there are certain limitations to such studies. A significant limitation is the limited or irrelevant

articles due to the setting out of selection criteria. This is because when selection criteria are made, several articles are excluded and provided that meet the requirements. Furthermore, a systematic literature review is expected to be subjective and less biased, but this cannot be ensured fully. Moreover, the articles are reviewed by the researcher and findings are synthesised, which may be affected by the researcher's expression of ideas and thoughts.

3 Chapter 3 – Systematic Literature Review Findings

This chapter presents the findings of the systematic literature review. Scopus database was used to extract the articles, and after careful analysis and review of the abstracts, 41 articles were shortlisted. The chapter is distributed into various sections. Section 3.2 summarises the research articles. Section 3.3 provides the findings regarding the digitalisation of human resource management. Section 3.4 highlights the changes within the system and function of human resources due to digitalisation. Section 3.5 shows the impact of changes in digital transformation on operations by understanding how changes have affected the existing system. Furthermore, section 3.6 shows the effect on the organisation's human resource experts and employees. Lastly, section 3.7 presents findings from the research articles that have evaluated and explored the impact of digitalisation on other departments or functions of the organisation.

3.1 Summary of the Research Articles

The systematic literature review requires a critical and comparative analysis of the research articles to conclude. The 47 shortlisted articles were witnessed adopting different methodologies and conducted in various geographical and industrial contexts. Considering the selection and shortlisting criteria, it was ensured that the studies based on the empirical qualitative or quantitative data were selected. Appendix 1 shows the summary of the research articles selected for conducting the systematic literature review.

3.2 Digitalisation of Human Resource Management

Human Resource Management is pressured to increase efficiency and introduce a more talented and capable workforce (Al-Alawi et al., 2023; Zavyalova et al., 2022). Amoka et al. (2023) referred to the technology-related model (Technology Acceptance and Diffusion Model) to address the factors influencing human resource management's

digitalisation. Furthermore, Al-Alawi et al. (2023) argued that human resource management is affected by the organisation's existing infrastructure. According to the study's findings, when organisations are focused on investing in digital infrastructure development, such businesses are inclined towards bringing digital transformation (Al-Alawi et al., 2023).

Zavyalova et al. (2022) revealed that digitalising human resource functions has provided a more flexible working environment. However, this digitalisation has negatively impacted financial performance due to cost factors. Similarly, Van den Berg et al. (2020) revealed that digital transformation leads to better human resource practices. But, to acquire the digitally transformed human resource system, they need a competent workforce. Furthermore, Erro-Garcés and Aramendia-Muneta (2023) argued that the digitalisation of human resource management is mainly connected to data analytics. The decisions made based on the data help organisations make more appropriate decisions. This is because analytics help to make rational decisions that identify the candidate or person with the potential to contribute more within the organisation (Erro-Garcés & Aramendia-Muneta, 2023).

The studies have observed that the digitalisation of the human resource department is associated with different components. Bechter et al. (2022) and Escribá-Carda et al. (2024) argued that organisational characteristics such as size and nature determine whether the organisation can bring the required transformation. Furthermore, Bechter et al. (2022) highlighted that the economy and technology infrastructure impact digital transformation. Theotokas et al. (2024) referred to cultural intelligence and organisation culture to impact digital transformation. This shows that organisations depend on their internal and external factors to bring transformation. Moreover, digital transformation may not produce similar quality outcomes as it is affected and dependent on various factors.

3.3 Changes taking place in the Human Resource System

Digital tools sometimes supplant Human Resource Professionals' expertise and years of experience. This is because the decisions made by digital technology are rational and based on analytics and logical reasoning, while Human Resource experts use their human knowledge and human understanding to make decisions (Wiblen & Marler, 2021). Researchers proposed considering the role of digital technology and its impact on the system's efficiency. There is a need to develop a collaborative system where the experience of analytics and human resource experts could be used to bring better outcomes. Nguyen et al. (2024) argued that digitalising training programmes (human resource operations) can significantly impact training outcomes. The study conducted a case study and observed that digitalisation helps identify and incorporate different training factors across the job families that enhance the training sessions' efficiency, performance, and outcomes.

Erro-Garcés and Aramendia-Muneta (2023) argued that digitalisation of the human resource system has been found to completely transform operations by increasing the effectiveness and performance of employees. Piwowar-Sulej et al. (2024) argued that the digitalisation of the human resource department has led toward opting for digital systems for hiring, monitoring, and evaluating the performance of employees. For this, infrastructure is upgraded, and researchers have argued that the advancement of digital systems impacts its outcomes (Ulatowska et al., 2023)

From daily or routine record-keeping to analytical decision-making, digitalisation has increased accuracy and efficiency (Erro-Garcés & Aramendia-Muneta, 2023; Ellmer & Reichel, 2021). However, despite digitalisation's benefits and impact on organisational performance, Chapano et al. (2023) argued that some factors are a barrier to digitalising human resource management. The factors highlighted included the technological and environmental factors. For instance, external factors like government policies influence the company's technology infrastructure (Chapano et al., 2023). Furthermore, researchers also highlighted that people and organisations are sometimes reluctant to

bring digital transformation as it challenges their ways of doing things (Chapano et al., 2023). Similarly, Mazurchenko and Maršíková (2019) observed that human resource specialists do not want to bring digital innovation as it loses their decision importance.

Kuchciak and Warwas (2021) revealed that digitalisation helps evaluate employees' performance. The study showed that employers can monitor and develop their workforce skills, which leads toward a positive impact on the employees' performance. One of the significant changes brought into the system is related to the gamification. Kaoud and ElBolok (2023) and Silic et al. (2020) revealed that gamification helps human resource management to increase employee engagement. Del Val Núñez et al. (2024) and Stacho et al. (2022) also indicated that employees directed to game-based simulation witnessed to engage better and have a positive working environment. Moreover, Najam et al. (2022) observed the role of virtual reality and observed that it can also help to increase employee productivity. Researchers argued that employees, through virtual reality, can assess different situations and determine how they can act or respond in specific situations (Najam et al., 2022).

3.4 Impact of Digital Transformation on Human Resource Management Operations

Talent management has been significantly affected due to the digitalisation of the system (Wiblen & Marler, 2021). The study revealed that human resource systems are directed toward more analytical and rational decision-making. This is because digital tools help produce analytical facts and utilise them to identify the talented workforce based on one's performance, experience, knowledge, and performance (Wiblen & Marler, 2021). However, Fenech et al. (2019) argued that human resource experts are not involved in bringing about digital transformation; instead, they are involved in its usage. This shows that human resource experts lack digital innovation capabilities. Considering this, Kemendi et al. (2022) argued that organisations are looking forward to digital and technology-literate personnel working within the organisation.

Kucherov and Tsybova (2022) observed that e-recruitment has a significant positive impact on recruitment outcomes. Companies can reduce the operational cost of hiring. It shows that employees with the right skills are likely to get hired, which supports the evidence by Wiblen & Marler, 2021). Vardarlier and Ozsahin (2021) revealed that e-recruitment (through social media) has acquired much attention and positively impacted recruitment outcomes. The study showed that social media provides access to large target audiences at a no or lower cost in comparison to traditional recruitment ways (Vardarlier & Ozsahin, 2021; Bejtkovský et al., 2018). Furthermore, studies have also revealed that organisations can achieve better outcomes through reskilling, upskilling, and redeployment of employees (Kuchciak & Warwas, 2021).

Digitalisation has provided the advantage of replacing work's routine and monotonous nature with digital tools (such as attendance), which has relieved the human resource department (Zavyalova et al., 2022). The studies have also revealed that the functions have changed as recruitment has shifted toward digital transformation. Gilch and Sieweke (2021) argued that recruiters promote digital transformation as it helps to identify potential candidates with the proper set of skills by scanning through hundreds of applications. It is time and cost-efficient.

3.5 Impact on Human Resource Personnel and Employees

The digitalisation of the organisation's operations has positively and negatively affected the organisation's personnel. From the human resource experts' perspective, it is observed that employees are witnessed to believe that they have less influence or value in selection and workforce-related decision-making (Wiblen & Marler, 2021). Al-Alawi et al. (2023) observed that the employees' engagement within the organisation is positively affected by digital transformation. They revealed that automation of various activities helps to smoothline the operational activities for the employees. In contrast to Wiblen and Marler's (2021) findings, Al-Alawi et al. (2023) observed that managers positively

collaborate to bring the digital transformation of human resource management. They are directed to contribute to the strategic decision-making. However, Van den Berg et al. (2020) argued that human resource specialists require specific competencies for effective digital transformation, which is impossible to achieve without.

Deng et al. (2024) highlighted the different impacts on the human resource department. Due to digitalisation, data recording is witnessed to align with employee's sense of belonging, but the automation of systems results in losing their ability to make decisions. However, managers in different departments are observed to play a moderate role in reducing the negative impact of digitalisation on employee performance (Deng et al., 2024). They argued that when the employees are directed to witness the automation of operations, they lose the sense of empowerment and all decisions are made based on digital tools within the human resource department. Therefore, to reduce the perceived negative impact, managers' empathy and influence tactics help to overcome the negative outcomes (Deng et al., 2024). However, Erro-Garcés and Aramendia-Muneta (2023) argued that the positive relationship between employees and managers can help to minimise the barrier to digitisation and can directed toward achieving favourable outcomes.

Sani et al. (2023) argued that digital transformation within human resources management is linked to employee onboarding. The study revealed that when the employees are onboard, they will likely acquire the skills or already have to use the digital system. The study revealed that it improves employee and employer relationships (Sani et al., 2023; Sendlhofer and Lernborg, 2018). A study has concluded that digital transformation helps improve employees' mental health (Nguyen et al., 2023). The study revealed that when employees can work flexibly, such as working from home, this relieves them and allows them to do the work easily (Nguyen et al., 2023).

3.6 Impact of Digitalisation of Human Resource Management on Other Functional Departments

Studies have shown that the digitalisation of human resource management significantly impacts the performance of other departments. Salim and Sulphey (2021) concluded that supply chain management and human resource digitalisation are positively interrelated. This study shows that the changes in human resources through digitalisation have an impact beyond its department. Furthermore, Zeng et al. (2022) argued that the financial performance of the company is significantly affected due to digital transformation. The study revealed that digitalisation helps create a flexible working environment, positively impacting employee performance. Some other scholars also argued that the digitalisation of the human resource department impacts employee performance, ultimately leading to an impact on organisational performance (Kemendi et al., 2022; Bejtkovský et al., 2018).

Studies have also observed the impact of the digitalisation of human resource management on specific industries. Zabala et al. (2022) argued that digitalisation helps the human resource department train and develop employees' skills. The continuous checking and monitoring of how employees perform helps achieve better and more favourable outcomes for the service industry.

Studies have also observed that the digitalisation of human resource management impacts stakeholder relationship management. For instance, Sendlhofer and Lernborg (2018) argued that organisations face sustainability-related issues regarding labour rights in supply chain management (i.e. modern slavery). The study revealed that the digital training of labourers to educate them on their labour rights can help resolve and revolutionise the common issues in the supply chain. However, its adoption depends on the willingness of the factory and the worker's accessibility to it. Similarly, Van den Berg (2020) observed that digitalising human resource management helps develop better stakeholder relationships. It shows that digital tools help smooth and fasten

communication and impact the relationship between people and the organisation (Malik et al., 2024).

4 Chapter 4 - Discussion

This chapter presents the conceptual framework of the findings. The purpose is to observe the findings and develop a framework that presents the discussion on the findings. It reveals the meaning of the findings by combining the findings. Section 4.1 shows the findings on the digitalisation of human resource management by understanding the factors contributing to digitalisation and factors affected by it. Section 4.2 presents the impact of different digitalised functions and reveals its connection to organisational performance.

4.1 Human Resource Management Digitalisation Conceptual Framework

The studies reviewed in the literature provide a similar set of findings. The extensive amount of literature reflects on how different factors are related to digitalisation and how it can create different outcomes. Figure 4.1 shows the conceptual figure of the digitalisation of human resource management.

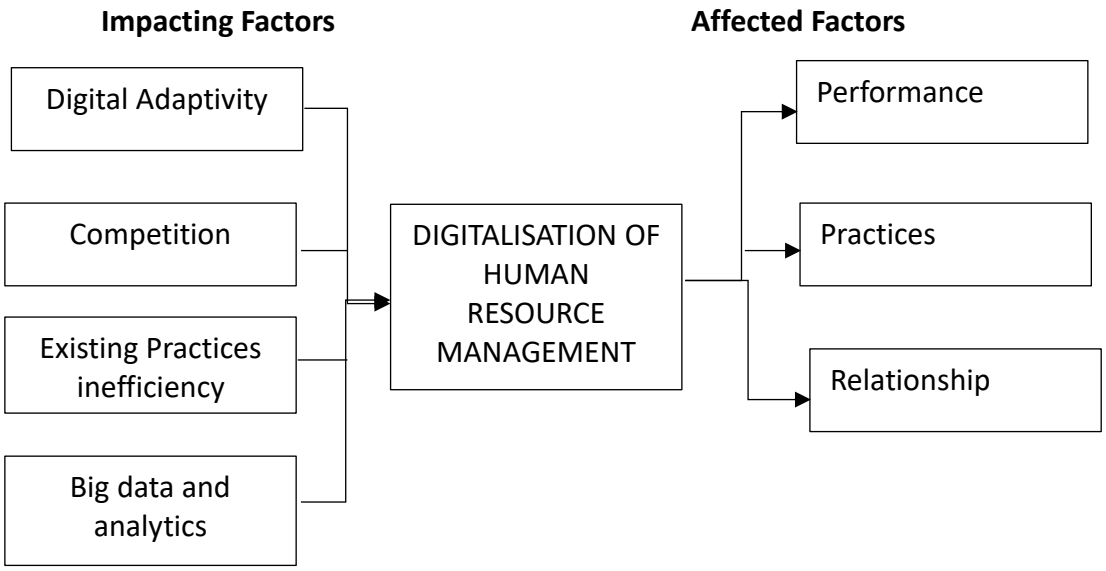

Figure 4.1: Factors Impacting and Affected by Digitalisation of Human Resource Management

Figure 4.1 shows from the literature that four of the most common reasons or factors identified led to the department's digitalisation. It shows that the rapid digital adaptivity among people led towards the digital system and tools to be introduced within the system (Nguyen et al., 2023). Furthermore, competition among organisations pushes them to search for better ways of doing things. Organisations can use digital tools to stand out and create a brand image (Najam et al., 2022). Besides this, the problems or shortcomings within the existing practices, such as the failure to hire the right candidate, result in redoing the hiring process (Kucherov & Tsybova, 2022). Lastly, big data or analytics's role in every sector is one of the most common factors affecting digital transformation. Organisations are directed to observe that rational decisions made through data help better forecast things (Ellmer & Reichel, 2021).

Different factors are highlighted to shift the human resource department to transform digitally. The systematic literature review highlighted that one of the important contributions is the impact on performance. Employees are witnessed to carry out their tasks better (Bechter et al., 2022). This is because most of the work that could have

chances of human error has been directed toward automation. The human resource department's digitalisation affected the performance of human resource specialists and employees working in other departments. This collectively boosts the organisational performance and increases the financial returns for the organisation (Zeng et al., 2022). Digitalisation has another important role in changing practices. Instead of doing repeated or manual work, many have been replaced, such as employee attendance. Lastly, the engagement and relationship with different stakeholders are affected (Malik et al., 2024).

These findings show the benefits organisations have observed in real-time scenarios due to digitalisation. However, the workforce has facilitated and challenged these changes or transformations. This indicates that when the organisation is looking forward to digitalisation, it is required to ensure that the existing staff or workforce is aligned. The impact or process of digitalisation is found to be similar to change management. Moreover, organisations need to assess the nature of digital transformation and the magnitude of required digitalisation based on their operations for better and more financially viable outcomes.

4.2 The digitalisation of Human Resource Management and Other Departments

The systematic literature review shows that the digitalisation of human resource management has affected the performance of other departments. Figure 4.2 shows the relationship between various departments.

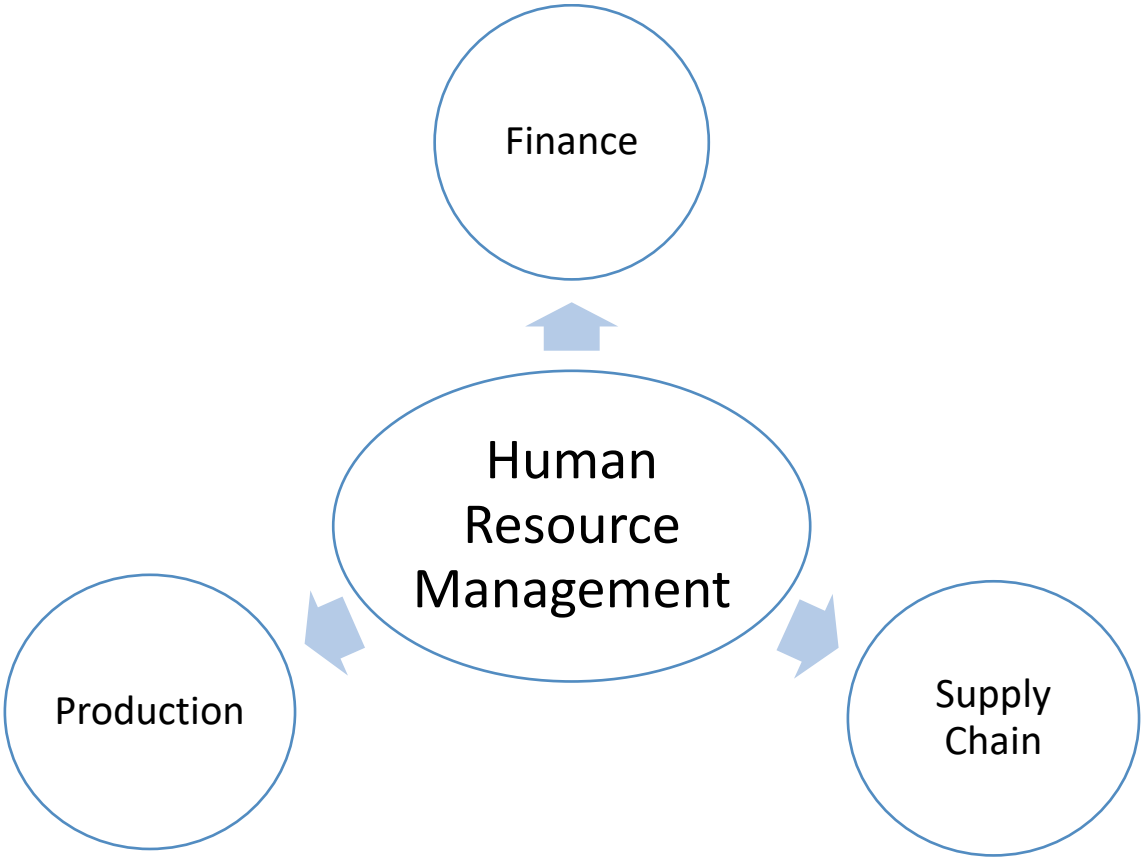

Figure 4.2: Departments Affected through Human Resource Management Digitalisation

The production department is affected by digitalisation by offering digital training. Training employees through digital tools was found to be frequent and effective (del Val Núñez et al., 2024). The training with digital tools was found to be realistic. Similarly, the gamification of different tasks helps to increase the willingness of employees to complete the tasks assigned to them (Kaoud & ElBolok, 2023). This shows that when employees are provided with digitally advanced ways of learning how to do things, they can do well. Therefore, better engagement and employee skills lead to a positive impact on production. This has been evident from the literature.

The supply chain is found to be significantly affected. Digital training and awareness among employees eradicate many issues and problems (Sendlhofer & Lernborg, 2018).

This is because organisations can direct employees to learn what they are capable of and allowed to do. Based on the evidence gathered from the systematic literature review, supply chain operations are also affected. This is because of the digital tools used for communication among the employees. Overall, it shows they can perform well when the employees are digitally trained and literate. This is witnessed in influencing the outcomes derived.

The finance department is witnessed to be affected differently. Studies have shown that digitalisation results in bearing costs, which may not produce a return of equal worth. However, studies have also revealed that employees perform well after digitalisation, which increases the return (Erro-Garcés & Aramendia-Muneta, 2023). However, the studies have recommended exploring it further to understand and identify the factors that could lead towards better financial returns. Hence, the impact is witnessed, but of a different nature.

4.3 Overview

The findings from various studies show that the digitalisation of human resource departments has remained under discussion for several years. Different studies have looked into other aspects and factors that are being affected. The human resource department is an important department that directly and indirectly affects the overall organisational performance. The findings from the studies are limited in context, and most of the studies are based on the qualitative or specific context. The findings are made, and recommendations are made to expand the scope of the research further. The research studies have identified and assessed the factors leading toward the literature, but the studies lack evidence on assessing digitalisation's impact on them. For instance, companies are adopting e-recruitment to improve recruitment outcomes. Evaluating whether it has been affected in the long run is necessary.

Moreover, various departments are affected by the digitalisation of human resource management. However, studies lack evidence on how the digital tools implemented within the specific department affect the employees. For instance, departments are revealed to witness the negative impact on the return. However, studies have not been conducted on how the digital transformation of human resource practices affected the performance of employees within the department. Many studies have been conducted, but future studies could address many gaps.

5 Chapter 5- Conclusion and Recommendations

5.1 Contribution of Research

This study aimed to conduct a systematic literature review on the digitalisation of human resource management. The research articles were selected by setting out specific criteria that help extract the articles relevant to the research purpose. The analysis revealed the availability of extensive literature. However, some of the studies were found to address similar broad factors, such as employee performance and organisational performance. This study summarised and presented the factors found to be common in the literature and have been previously studied to understand their role in digital transformation.

Moreover, the systematic literature review revealed the various other functions or departments that were affected by the digital transformation of the human resource department. Based on the findings, this study theoretically contributes by developing conceptual models that show the factors and the nature of the relationship with the digitalisation of human resource management. Moreover, the study provides valuable practical implications. These implications are related to facts such as the size and nature of the business and its impact on the effectiveness of the digitalisation of human resource management. Furthermore, virtual reality and gamification help organisations across different industries and sectors, which provides evidence that organisations can implement them to improve their service qualities and employee performance.

5.2 Limitations of Research

This study has certain limitations. The systematic literature review was conducted on limited research articles such as English language, available on the Scopus database, published between 2015 and 2024, and have specific keywords. This resulted in the production of research articles with specific criteria that limited the scope of the systematic literature review. Furthermore, the analysis is based on a manual review of the articles. Various software and applications could be used to better present the findings through graphs and charts.

5.3 Suggestions for Future Study

Based on the findings and observations, future studies can be conducted to critically analyse the impact of artificial intelligence and data analytics on the human resource department in the long run. For this, panel data and years of observations can be made to understand the impact being created. Furthermore, future studies can be conducted on generalising the existing models by expanding the scope and conducting studies on different industrial or geographical contexts. Lastly, an analysis can be undertaken to understand how the existing barriers affected by the digital transformation of human resource management can be reduced or eliminated.

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7 Appendices

7.1 Appendix 1

Summary of Research Articles

Authors	Article Title	Method	Results and Findings	Suggestions for Future Studies
Wiblen and Marler (2021)	Digitalised talent management and automated talent decisions: the implications for HR professionals	Qualitative Case Study (Semi-structured interview, public information, and internal company documentation	Digital technology is witnessed to impact talent management differently due to stakeholders' interactions and organisational context. The pro of digital technology is that it improves the system's efficiency and brings standardised practices. However, it is affected by the involvement of human resource experts, which requires a shift in human resource	-Understand the influence of technology on pre-existing mental models. -Evaluate the impact of modern technology based on AI.

			personnel's role to strategic decisions.	
Amoako, Jiang, Adu-Yeboah, Frempong, Tetteh (2023)	Factors influencing electronic human resource management implementation in public organisations in an emerging economy: An empirical study	Quantitative Study (Questionnaire)	The research explored various factors and observed that different aspects related to the operation's efficiency, such as perceived simplicity of usage, self-efficacy, and others, are creating a significant positive impact on the intention to digitalise human resource management.	-Understand the impact of HRM's digitalisation on outcomes. -Identify the challenges in digitalising the human resource system in emerging economies.
Deng, Li, Wang, Zhu (2024)	The double-edged sword in the digitalisation of human resource management: Person-environment fit perspective	Quantitative Study (Questionnaire survey: Paired sample of manager and employee)	The study found that when data produced through digital tools are aligned with employees, it increases employee's sense of belonging. Furthermore, automation harms employee empowerment. The managers' empathy is witnessed to moderate	-Conduct the same study on a broader longitudinal sample group. -Explore the relationship between digitalisation and employees based on other factors, excluding

			technology's effects on employee performance.	data recording and automation processes.
Nguyen, Nguyen, Le, Nguyen, Nguyen, Vo, Truong, Nguyen (2024)	Training programme to develop title positions based on competency framework in the digital transformation of EVN	Qualitative Study (case study and desk method)	The study identified ways to digitalise the training programme. Twenty-seven training programmes were developed for 22 job families. The study revealed that there are three stages of conducting the research. In stage one, a programme framework is designed for job families. In stage two, the training programme is coded and imported into the system to be introduced within the job families. In stage three, appraisal and feedback are provided. The study concluded that the digitalisation of training is effective and helps to bring changes across the system.	-Understand the development of training programmes in different industries and sectors.

Al-Alawi, Messaadia, Mehrotra, Sanosi, Elias, Althawadi (2023)	Digital transformation adoption in human resources management during COVID-19	Quantitative Study (Questionnaire Online survey: manager and employee)	The study observed a positive impact of digital transformation on organisational performance and employee engagement. The study observed the role of digital infrastructure investment in the digitalisation of human resource operations. Furthermore, the top management's collaboration and positive role are essential for bringing digital systems.	-Study various other enterprises. -explore the digital transformation aspects and its implementation
Erro-Garcés and Aramendia-Muneta (2023)	The role of human resource management practices on the results of digitalisation. From Industry 4.0 to Industry 5.0	Secondary Study Based on European Company Survey 2019	This study revealed the interdependency nature of the company's profit, human resource system, and data analytics. According to the survey, technology is witnessed to facilitate the execution of human resource activities, which	-Examine the relevancy and importance of digital skills in digitalisation.

			significantly affects the company's financial performance. Furthermore, human resources have been found to affect technology adoption and utilisation significantly.	
Zavyalova, Sokolov, Kucherov, Lisovskaya (2022)	The Digitalisation of Human Resource Management: Present and Future	Quantitative Study	Digitalisation is based on quantitative (breadth or reach) and qualitative (effectiveness or efficiency) components. Companies with digital human resource systems have greater flexibility, younger staff, and a convenient employment format. Furthermore, the study negates the positive correlation between digital human resource systems and financial indicators and reveals that human resource	-Identify and thoroughly analyse human resource functions that need digitalisation. -Nature and factors of the digitalisation at foreign and Russian companies.

			digitalisation may not produce similar outcomes for all sectors.	
Kucherov and Tsybova (2022)	The Contribution of e-recruitment Practices to e-recruitment Outcomes in Russian Companies	Quantitative Study	This study focuses on electronic recruitment by the human resource department. It reveals that e-recruitment has positive outcomes for recruitment and supports a positive impact on organisational performance (by reducing cost). However, internal technology-based hiring is ineffective as companies have revealed that they do not opt for digital tools in all human resource practices.	-Conducted comprehensive research with objective data and cross-country analysis.
Van den Berg, Stander and van der Vaart (2020)	An exploration of critical human resource practitioner competencies	Qualitative Study (Interview)	The study found that human resource practitioners working in digitally transformed organisations require competencies in different	-expand the scope of the study to generalise the findings

	in a digitally transformed organisation		areas. It is used for continuous learning, processing, and using data for analytical decisions, relationship management with stakeholders, and promoting positive organisational practice.	
Zeng, Ran, Zhou, Jin, and Cheng (2022)	The financial effect of firm digitalisation: Evidence from China	Quantitative Study (Panel Data 2012-2019)	The study concluded that digitalising human resource operations positively and significantly impacts organisational performance. The way employees are handled and the organisation's environment is developed has a positive impact due to digitalisation.	-the study should be conducted to assess long-term mechanisms. -The role of dynamic capabilities should be empirically analysed.
Kemendi, Michelberger. Mesjasz-Lech (2022)	INDUSTRY 4.0 AND 5.0 – ORGANISATIONAL AND COMPETENCY CHALLENGES OF ENTERPRISES;	Quantitative Study (Cluster Analysis)	The study identified human resource functions' significant and positive impact on organisational performance. In industries 4.0 and	-future studies can be conducted to analyse the difference between the impact created due

			5.0, digital literacy and knowledge are crucial factors. It reflected that companies look for people with relevant skills, which is made possible through digitalising human resource management practices.	to digitalisation and compare 4.0 and 5.0 outcomes.
Piwowar-Sulej, Blštáková, Ližbetinová and Zagorsek (2024)	The impact of digitalisation on employees' future competencies: has human resource development a conditional role here?	Quantitative Study (panel data)	This study looked into the moderating role of human resource development between employees' digital orientation and future competencies of employees. The study found that employees perform better and increase their future competencies when an organisation creates a learning culture, training evolution, recognition, and empowerment.	-Expand the geographical scope of the study's findings and generalise them. -Holistic models are to be considered in future studies. -analyse the customer-centric approach.

Sani, Adisa, Adekoya, and Oruh (2023)	Digital onboarding and employee outcomes: empirical evidence from the UK	Qualitative Study (Interview)	The study concluded that the organisation's digital onboarding of employees positively impacts employee commitment and engagement. The study examined how human resource practices have altered and observed that employees and employers are more positive about interacting with digital onboarding.	-conduct a quantitative study to acquire data from a large sample group. -cross-cultural study -analyse different digital onboarding technology and their impact. -explore similarities and differences in digital onboarding.
Salim and Sulphey (2021)	Performance of supply chain management and digitalisation of human resource information in SMEs	Quantitative Study (Questionnaire)	The study revealed that the digitalisation of human resource management significantly and positively impacts supply chain management. The study supported the role of digital communication, which helps streamline the employees' operational activities.	-did not provide any recommendations for future studies.

			It has improved the quality of work and efficient utilisation of skilled resources.	
Chapano, Mey, and Werner (2023)	Perceived challenges: Unfounded reasons for not forging ahead with digital human resource management practices	Quantitative Study (Questionnaire)	The study revealed that according to the literature, the digitalisation of human resource systems faces challenges due to the people, technological and environmental aspects, and organisation. The study also found that South African companies that are mainly digitalised do not face challenges due to these factors.	-Expand the study by considering different geographical contexts.
Vardarlier and Ozsahin (2021)	Digital Transformation of Human Resource Management: Social Media's Performance Effect	Quantitative Study (Questionnaire)	The regression analysis revealed that organisations in Turkey are directed to hire employees from social media and Linkedin. It highlighted the importance of digital tools for reaching the	-Future studies can be conducted to understand the impact of other digital tools.

			talented workforce. The study also revealed that social media usage positively mediates the firm's performance and the relationship between the digital human resource system and the firm.	-conduct the studies in other countries to generalise the findings
Kuchciak and Warwas (2021)	Designing a Roadmap for Human Resource Management in Banking 4.0	Mixed Study (Qualitative and Quantitative Data)	The study revealed that the banking sector is witnessing significant benefits from digitalising human resource practices. The banking sector can overcome the performance problem through reskilling, upskilling, and redeployment. It is possible through the digitalisation of the human resource system.	No recommendations are made.
Bejtkovský, Rózsa, and	A phenomenon of digitalisation and E-	Quantitative Study	The study observed the significant and positive impact of using social media for recruitment. E-	-expand the research findings by conducting

Mulyaningsih (2018)	recruitment in a business environment		recruitment has been revealed to impact the company's financial performance favourably. The study also observed the impact of industry classification on the organisation's digitalisation. Lastly, the study argued that digitalisation is not suitable for all sizes of corporations.	studies in other countries.
Sendlhofer and Lernborg (2018)	Labour rights training 2.0: The digitalisation of knowledge for workers in global supply chains	Qualittative Case Study (Interviews)	The study explored the digital training of workers on their labour rights. The study revealed that digital training can significantly help eliminate the common issues encountered in global supply chain sustainability. It can be used as a self-regulation tool. However, researchers have argued about the accessibility of workers to such	No recommendations are made.

			training and factory management's willingness to incorporate it.	
Fenech, Baguant, and Ivanov (2019)	The changing role of human resource management in an era of digital transformation	Qualitative Study (Interview)	The study concluded the digitalisation of human resource information systems and other digital tools. Created a significant impact on human resource functions. The study also added that human resource experts do not contribute to digitalisation and emphasise using digital tools to automate tasks. Furthermore, the study concluded the positive role of digital tools on communication.	-Conduct a study on the changing role of human resources in the era of digitalisation with a broader sample. -conduct a study on e-learning among employees. -study can be conducted from a business analytics perspective to understand the impact on information systems.
Mazurchenko and Maršíková (2019)	Digitally-powered human resource management:	Qualitative Study (Secondary Data)	The study observed that digitalisation is in high demand due to its impact on organisational	-Explain why human resource experts are

	Skills and roles in the digital era		performance. However, the study revealed that human resources specialists are reluctant to implement it within the organisation. This is mainly because of the effect on human resource experts' importance and role in decision-making, which depends more on data.	reluctant to adopt digital tools.
Kaoud and ElBolok (2023)	Organisational learning via gamification for employer brand management	Qualitative Case Study (Interview)	The study revealed that human resource management can be directed toward introducing game-based learning. The study showed that it helps in positively increasing the employee's engagement and also their performance. Furthermore, social media platforms can be used to improve the brand knowledge.	No recommendations made

Zabala, Campos, and Narvaiza (2022)	Moving from a goods- to a service-oriented organisation: a perspective on the role of corporate culture and human resource management	Qualitative Study (Archival data and interviews)	The study revealed that adoption of the digital tools impacts the corporate culture. This study shows that within the service-oriented organisation, digitalisation is equally essential.	-conduct study in different industrial contexts. -Evaluate the impact of ownership on the corporate culture and HRM due to digital tools.
del Val Núñez, de Lucas Ancillo, Gavrila Gavrila, and Gómez Gandía (2024)	Technological transformation in HRM through knowledge and training: Innovative business decision-making	Quantitative Study (Questionnaire)	Business game simulation has been found to impact human resource management positively. The study revealed that business simulation games help the team's crisis preparedness, improve competing abilities, and provide a comprehensive organisational viewpoint. It also added that the digital transformation of human resource practices can provide	-evaluate the impact of business stimulation games on other human resource practices.

			more realistic outcomes for organisations.	
Ulatowska, Wainio, and Pierzchała (2023)	Digital transformation in HRM of the modern business service sector in Finland and Poland	Mixed study (Questionnaire and Interview)	The study revealed that the majority of the respondents admit to the usage of digital tools within the organisation. Organisations went through a rapid transformation after the pandemic. However, this study was conducted on the companies operating in Poland and Finland. Companies from Finland witnessed digital innovation earlier before the pandemic, while Poland went through a transformation after the pandemic. This reflects on the level of technological advancement of companies from both countries.	-expand the scope of this study's findings by conducting a study in different contexts. -explore the challenges faced during the technological advancements. -Identify the stage in which innovation can be introduced.

Gilch and Sieweke (2021)	Recruiting digital talent: The strategic role of recruitment in organisations' digital transformation	Qualitative Study (Interview)	The study explored the recruiter's role in digital transformation. The analysis revealed that recruiters understand the importance of new ways of hiring and bringing new target groups. Recruiters also revealed that they should adapt their self-understanding to stand out. Furthermore, recruiters have acted as facilitators for bringing digital transformation within the human resource system. The study also reported the mediating role of recruitment as a sensory organ and mediator between the groups.	-evaluate the recruiter's role in the company's ability to acquire external knowledge. -further, explore the recruiter capability -expand the scope of the study by increasing the sample size.
Ellmer and Reichel (2021)	Staying close to business: the role of epistemic alignment in rendering HR	Qualitative Study (interview)	The study revealed the importance and role of human resource analytics within the organisation. The study developed a framework	-A study can be conducted on the role of different human resource teams.

	analytics outputs relevant to decision-makers		through epistemic alignment, which provided realistic outcomes to be introduced within human resource analytics. The study revealed how human resources can make decisions using data from internal and external complex situations.	-integrating human resource analytics into various organisations and sectors to identify skills needed for its universalisation.
Malik, Nguyen, Budhwar, Chowdhury, and Gugnani (2024)	Leveraging high-performance HRM practices and knowledge sharing for managing technological and social change in emerging market healthcare providers	Qualitative Case Study (Grounded Theory)	The study revealed that high-performance human resource management practices contribute towards a positive social context for employers and employees. It allows us to communicate and share knowledge through digital tools and face-to-face in the healthcare sector. Furthermore, various other practices other than	-The study recommends conducting the study from a broader perspective by considering other industries.

			communication are found to be affected by it.	
Nguyen, Rundle-Thiele, Malik, and Budhwar (2023)	Impact of technology-based knowledge sharing on employee outcomes: moderation effects of training, support and leadership	Quantitative Study (Questionnaire)	The study identified a positive relationship between the employee's mental health and technology-based knowledge sharing. This study explored the research problem after the pandemic affected the working environment. The study also revealed that leadership, organisational culture, and training mediate the relationship.	-conduct a study to validate the model tested in this study. -conduct longitudinal research to evaluate the long-term impact of technology-based knowledge sharing.
Bechter, Brandl, and Lehr (2022)	The role of the capability, opportunity, and motivation of firms for using human resource analytics to monitor employee performance: A multi-level	Quantitative Study (Cross-national data and multi-level analysis)	The study revealed that data-driven decisions within the human resource depend on the firm's characteristics and contextual factors. Firms' structural and managerial characteristics are	No recommendations are made.

	analysis of the organisational, market, and country context		needed for making analytical human resource decisions. Furthermore, contextual factors like political, social, and market factors impact the usage of human resource analytics.	
Theotokas, Lagoudis, Syntychaki, and Prosilias (2024)	Factors affecting E-HRM practices in Greek shipping management companies: the role of organisational culture, cultural intelligence, and innovation	Mixed Study (Qualitative and Quantitative)	The study revealed that the organisation's culture and intelligence are essential in promoting digital innovations. This impact is determined through the varying nature of the organisational cultural impact on digital innovation. Organisational leadership influences adoption, while the organisation's cultural intelligence affects digital human resource management.	- A study can be conducted including non-Greek companies. - A study can be conducted using different constructs, such as soft skills.

Najam, Nisar, Hussain, and Nasir (2022)	Enhancing Employer Branding through Virtual Reality: The Role of E-HRM Service Quality and HRM Effectiveness in the Hotel Industry of Pakistan	Quantitative Study (Questionnaire)	The study revealed that introducing virtual reality within the hotel sector can significantly impact the effectiveness of human resource management. According to the study's findings, virtual reality helps improve the quality of service employees deliver. This leads to creating a positive impact on human resource management. The study added that it can influence employer branding.	-conduct experimental research to evaluate real-time virtual reality experience. -Conduct a study on virtual reality usage training by the human resource department to understand ways to improve employer branding.
Zhou, Liu, Chang, and Wang (2021)	The impact of HRM digitalisation on firm performance: investigating three-way interactions	Quantitative Study (Questionnaire)	The study evaluated the impact of human resource management digitalisation, its maturity, and strategic involvement in a firm's performance. All three factors directly correlate with a firm's performance, as when they are	-Develop more valid measurements of the model. -collect multi-source data to validate the mediating role of human resource specialists.

			high, the firm's performance is high. The study was based on the adaptive structural theory and embeddedness theory, which support the conceptual model and hypotheses of the study.	-Further explore the factors influencing the digitalisation of human resource management.
Stacho, Lizbetinova, Stachova, and Starecek (2022)	The Application of Progressive HR Tools in the Environment of Slovak Enterprises	Quantitative Study (Questionnaire)	The study evaluated the role of gamification within human resource management digitalisation. The findings made by the researcher revealed that organisations can create a significant and positive impact on human resource management through digitalisation. From better recruitment results to better performance, gamification is an effective tool. Furthermore, the actual applications used within the	No recommendations were drawn.

			organisation are also predicted to have higher importance in the future based on the expected outcomes.	
Silic, Marzi, Caputo, and Bal (2020)	The effects of a gamified human resource management system on job satisfaction and engagement	Quantitative Study (longitudinal data observation)	The study looked into the role of gamification to understand how it could influence the human resource management system. The study, based on a year-long observation, concluded that employees' satisfaction and engagement are positively affected by gamification. It creates a positive and enjoyable workplace environment, a part of a positive organisational culture.	-Consider alternative gamification factors to evaluate their impact on the organisation -Conduct a study considering external and internal factors such as organisational culture. -Study individual characteristics that influence the variables.
Escribá-Carda, Redondo-Cano,	Firms' digital transformation and e-human resource	Qualitative Study (Interview)	The study revealed that the digital transformation of human resource management is affected by the	-generalised the findings by expanding the scope of the study.

and Escribá-Moreno (2024)	management. A qualitative approach		firm's size and operations or activity nature. Furthermore, the study explored the impact of digital transformation, highlighting positive outcomes such as autonomy and efficiency. However, it was also revealed to have negative consequences, such as depersonalisation.	-evaluate the impact of system digitalisation on the long-run efficiency and effectiveness. -Explore metaverse and artificial intelligence.