Disruptive technologies for human resource management: a conceptual framework development and research agenda

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Abstract

Purpose – Disruptive technologies for human resource management (HRM) lack evidence about synthesizing its antecedents and outcomes in the empirical research landscape. This review study was conducted addressing two objectives: (1) to identify the themes of HRM technology empirically researched and (2) to develop a conceptual framework for the antecedents and outcomes of disruptive technologies for HRM.

Design/methodology/approach – This article was positioned as a literature review based on the systematic literature review (SLR) methodology. Seventeen articles published between 2000 and 2020 were included for the review from Scopus and LENS.ORG databases. The article screening, inclusion and analysis and findings reporting were based on the preferred reporting items for systematic reviews and meta-analyses (PRISMA).

Findings – In addressing the first objective, the review found that the electronic human resource management (E-HRM) intention and communication technology support impact E-HRM adoption, resulting in many outcomes. The outcomes include HRM service quality, organizational effectiveness, employee productivity and competitive advantage. In addressing the study's second objective, a conceptual framework was developed based on the gaps identified regarding the determinants and positive outcomes of disruptive technologies for HRM. Thus, the conceptual framework was presented from two perspectives. The perspectives were deduced with review results and theoretical grounds.

Research limitations/implications – The findings related to the two objectives provide theoretical and practical implications. One significant practical implication is that action and work-based learning of managers and employees in organizations may suggest adopting disruptive technologies for HRM. Thus future studies can focus on them as determinants of adopting disruptive technologies for HRM to conduct empirical tests. Besides, the findings provide some other future research directions.

Originality/value – The study found empirically proven determinants of E-HRM intention and communication technology support impact E-HRM adoption, which results in many positive outcomes. These were synthesized based on the studies conducted during the period 2000–2020. This synthesis and theoretical grounding deduced a conceptual framework for determinants and outcomes of disruptive technologies for HRM.

Keywords Disruptive technologies for human resource management, Systematic literature review, PRISMA, Conceptual framework development

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1. Introduction
Disruptive technologies are advancements in modern technology that destroy traditional methods (Aghion and Howitt, 1990; Rodriguez, 2016; Buhalis *et al.*, 2019). They are regarded as business drivers (Gupta and Saxena, 2012), facilitating various business functions. Human resource management (HRM) is one affected by these technologies, known as a disruptive technology for HRM (Gupta and Saxena, 2012), digital HRM (Waddill, 2018), smart HRM (Strohmeier, 2018) or smart human resources 4.0 (SHR 4.0). The disruptive technologies for HRM are social media, cloud computing, big data, data analytics, mobile technology and the Internet of Things (IoT) (Waddill, 2018).

These disruptive technologies have created HRM functions more automated (Lepak and Snell, 1998; Shrivastava and Shaw, 2003). Social media is used for various purposes, including candidate recruitment and selection (Bersin, 2017a), internal communications, team collaboration, training, learning and development (Waddill, 2018). For better decision-making, big data/data analytic software packages provide information about job seekers' and internal employees' performance, satisfaction, engagement, health, safety and well-being (Waddill, 2018; Priyashantha *et al.*, 2022a, b, c). They also aid in modeling career paths (Waddill, 2018). Cloud computing automates all HRM processes, such as Human Capital Software (HCM) solutions (Antonopoulos and Gillam, 2010; Ziebell *et al.*, 2019). Employee tracking, performance management, health, safety, well-being and work design are all aided by the IoT (Aronica, 2014; Agarwal and Kapoor, 2020). Then, mobile technologies facilitate all these social media, big data, analytic data software, cloud computing and the IoTs and have become a vehicle for other disruptive technologies for HRM (Priyashantha *et al.*, 2022a, b, c). According to industry experts and analysts, they result from improved HRM efficiency, employee experience and greater accessibility to HRM practices than ever before (Bersin, 2017b; Juo, 2017; Ulrich, 2017; Karan, 2020). This view needs to be further verified by reviewing the actual knowledge in the research landscape.

There is evidence that any HRM technology that has evolved, from Human Resource Information Systems (HRIS) to electronic-HRM (E-HRM) or from E-HRM to disruptive technologies for HRM, can produce better results for the business than earlier HRM technology. Given the research evidence in the literature on HRIS or E-HRM and their determinants and possible outcomes (Bondarouk *et al.*, 2017; Chandradasa and Priyashantha, 2021a, b), there are limited empirical studies on the determinants and outcomes of disruptive technologies for HRM (Priyashantha *et al.*, 2022a, b, c). There are views of book authors, bloggers and experts on different outcomes of disruptive technologies for HRM (Bersin, 2017a; Barman and Das, 2018; Joshi, 2018; Strohmeier, 2018). A review study of four decades of E-HRM adoption research till 2017 (Bondarouk *et al.*, (2017) and the latest review on the disruptive technologies for HRM (Priyashantha *et al.*, 2022a, b, c) has failed to find any determinants and positive outcomes of disruptive technology use for HRM. Thus, the empirical studies on HRM technology published during 2000–2020, downloaded from Scopus and LENS.ORG databases, were reviewed systematically. A conceptual framework was developed based on the gaps identified in the review. The underlined empirically proven evidence and the theoretical grounds in two perspectives were deduced to support the proposed framework. Since the disruptive technology for HRM is contemporary and relevant and lacks evidence on the proposed framework, the framework would help in understanding the determinants and possible outcomes of disruptive technology for HRM. Furthermore, the component of intention impacts the behavior of the theory of planned behavior (Ajzen, 1991), facilitative conditions of the unified theory of acceptance and use of technology (UTAUT) model (Venkatesh *et al.*, 2003), and the resource-based view (RBV) theory (Wernerfelt, 1984) can be validated from this proposed model. Additionally, the proposed framework can be used for empirical tests to validate the perspectives given.

In this background, the study's objectives were to (1) identify the themes of HRM technology empirically researched and (2) develop a conceptual framework for the

antecedents and outcomes of disruptive technologies for HRM. In addressing the first objective, a systematic literature review (SLR) was conducted. The methodology followed for that is discussed in the methodology section. The study selection process and methods, article risk of bias assessment and methods of analysis are explained in the methodology section. Moreover, the results and findings section consists of three sub-sections: study selection, article characteristics and the themes of HRM technology antecedents and outcomes. These three sections address the first objective of the study. The study selection outlines how the PRISMA article selection framework selected articles, whereas the article characteristics explain the basic characteristics of the selected articles. Then based on the term co-occurrence analysis done for the selected articles found, several themes are explained under the themes of HRM technology antecedents and outcomes. A conceptual framework was developed based on the themes identified, which are explained in section 3.4. It addresses the second objective of the study and offers two perspectives. Finally, the discussion, conclusion and implications are outlined in this paper.

2. Methods and methodology
2.1 Study selection process and methods
This study is a literature review that followed an SLR methodology. A protocol was developed to determine the inclusion criteria of articles and analysis methods. The inclusion criteria are given in Table 1. Articles included following a standard guideline recommended for a PRISMA SLR (Liberati *et al.*, 2009). The PRISMA has three steps: identification, screening and inclusion. Keywords or searched terms, search criteria, databases and data extraction are all part of the identification stage. "Disruptive Technology For Human Resource Management," "Electronic Human Resource Management" (E-HRM), "Digital Human Resource Management," and "Human Resource Management Information Systems" (HRIS), antecedents and outcomes were the standard search terms used. The search criteria were developed using "OR" operative for the similar terms for disruptive technology for HRM and "AND" operative between the antecedents and outcomes. The search criteria were written in Scopus and LENS.ORG.

There are two types the screening of articles; screening and eligibility checking. The screening includes automatic screening and manual screening. The articles were included using the default automatic screening functionality of the databases by following the inclusion criteria from one to five mentioned in Table 1. The number of articles excluded at this stage with the reasons caused is explained in section 3.1. Further, two independent colleagues of the author assessed each article manually against the inclusion criteria one, two, three and four mentioned in Table 1. For eligibility checking of the articles, the assessment of methodological reporting is essential (Meline, 2006; Priyashantha *et al.*, 2021; Priyashantha and Dilhani, 2022). As an inclusion criterion, five included the empirical research that employed quantitative methodologies, the articles that followed the quantitative research methodology were included in the study, and others were excluded. Two colleagues of the

Inclusion criterion	Focus on
1	Publications from 2000 to 2020
2	Publications in academic journals
3	Publications as articles
4	The articles in the English language
5	Empirical research that employed quantitative methodologies
Source(s): Author's conception (2022)	

Table 1.
Inclusion criteria

author did the task independently, and the disagreements about inclusion were resolved through discussion. The number of articles excluded with reasons at this point is explained in section 3.1.

Then the remaining articles were exported, containing the title, abstract, keywords, authors' names and affiliations, journal name, cited numbers and year of publication to an MS Excel sheet, which was used to feed the VOSviewer for necessary analysis. Figure 1 shows the article selection process and the reasons for excluding the articles.

2.2 Article risk of bias assessment

The quality of a review suffers due to researcher bias in article selection and analysis (Kitchenham and Charters, 2007). The selection bias can be minimized by following a review protocol, a systematic, objective article selection procedure (Xiao and Watson, 2019; Priyashantha *et al.*, 2022a, b, c), and conducting a parallel independent quality assessment of publications by two or more reviewers (Brereton *et al.*, 2007). Moreover, a preliminary protocol design that predetermines the analysis procedures can help to reduce analysis bias (Xiao and Watson, 2019). Thus, those procedures were followed to eliminate bias in article selection and analysis.

2.3 Methods of analysis

The analysis method used was a bibliometric analysis. It was performed through the VOSviewer. It is a quantitative method for analyzing scientific activity in research (Aparicio *et al.*, 2019; Paule-Vianez *et al.*, 2020). Among various bibliometric analyses, the term co-occurrence analysis is vital to identify the term used in article abstracts. The VOSviewer extracted the term co-occurrence data, creating term co-occurrence network visualization. This technique divides the term into several clusters (van Eck and Waltman, 2014) so that the themes represented by each cluster can be discovered (Priyashantha *et al.*, 2022a, b, c).
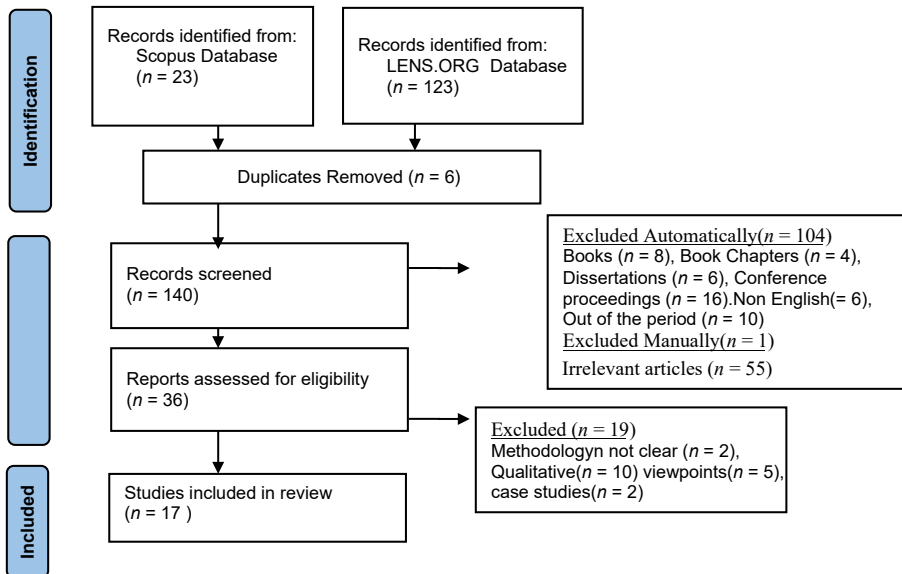

Figure 1.
PRISMA flow diagram

Source(s): Authors' creation (2022)

This approach was used to address the study's first objective, identify the theme of HRM technology antecedents and outcomes empirically researched.

3. Results and findings

3.1 Study selection

Initially, 23 articles were found in Scopus and 123 from the LENS.ORG databases to the search criteria mentioned in Table 1. The automatic screening functionality of both databases excluded 104 articles based on the inclusion criteria listed in Table 1. Notably, 10 articles were excluded as they did not meet criterion 1. Books ($n = 8$), book chapters ($n = 4$), dissertations ($n = 6$) and conference proceedings ($n = 16$) were excluded as they did not meet criteria 2 and 3. Six papers written in other languages were identified and excluded as they did not meet criterion 4. Besides, the manual independent assessment of two colleagues of the author found that 54 articles were irrelevant as they were outside the scope of the search terms. Additionally, in eligibility checking of articles found that the methodology was not clear ($n = 2$), qualitative ($n = 10$) viewpoints ($n = 5$) and case studies ($n = 2$), and they were excluded as they did not meet criterion 5.

3.2 Article characteristics

The descriptive data of the article set are given first. Figure 2 shows the categorization of the fields that the studies were conducted. Accordingly, most research has been conducted in business, among other areas. Other significant fields include knowledge management, HRM, human resources, marketing and E-HRM. Concerning the year-wise publications (Figure 3) even from the 2000–2020 duration considered for the review, no publication was retrieved until 2011. In 2019, the publications peaked at 13 articles. Moreover, the citation count of each paper received implies the articles' influenceability and popularity in the area studied.

Source(s): Authors' creation (2022)

Figure 2.
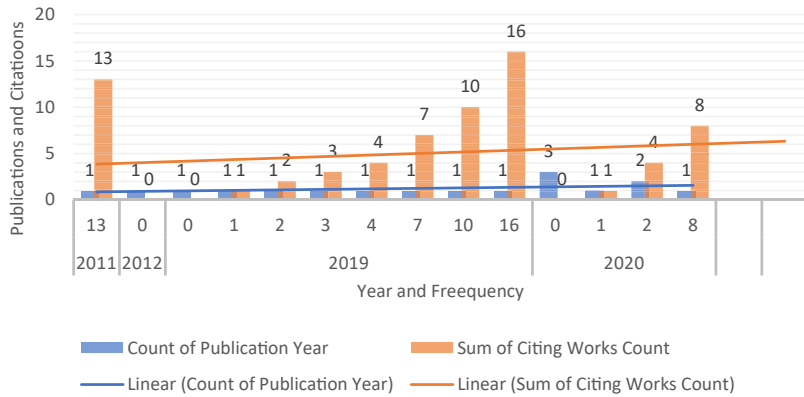Areas of study of the selected articles

Figure 3.
Number of
publications and
citations by year

Source(s): Authors' creation (2022)

In Figure 3, the orange color bars show the number of citations received years-wise. Accordingly, 2019 is the year that has the highest number of citation counts received and reveals great influence and popularity. Other than that, Figure 3 shows a trend in publications and citations count during the total period. That reveals that 17 articles spanning the last 20 years represent not a vast but exponentially increasing foundation of knowledge in various aspects of technology for HRM. The source country of articles presented in Figure 4 reflects that many published articles originated in India. The second large is the United States of America, the United Kingdom and Malaysia.
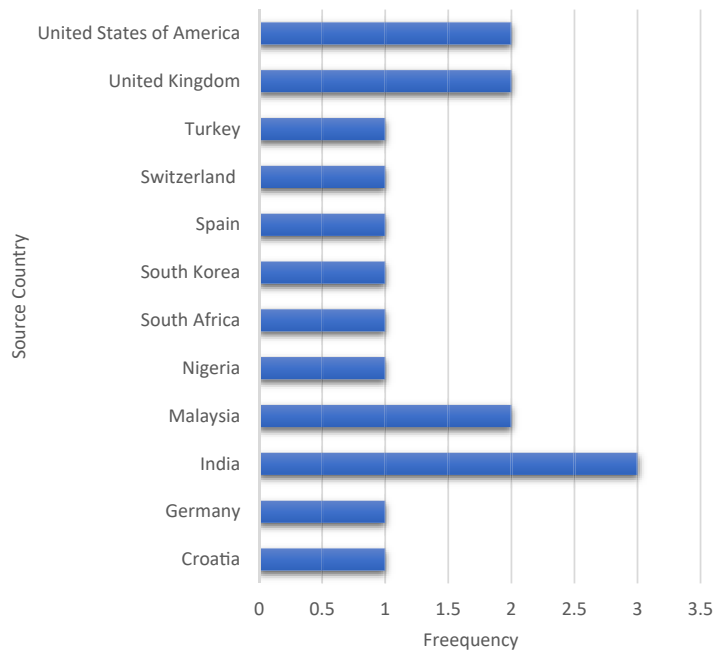

Figure 4.
Source country of
articles

Source(s): Authors' creation (2022)

3.3 Themes of HRM technology antecedents and outcomes
This section addresses the study's first objective, which was to identify the themes of HRM technology empirically researched. The themes were found using the term co-occurrence network visualization created by VOSviewer 1.6.18. The minimum threshold term occurrence value was set as five, and all the terms that had occurred five times and above in the abstract of each article were considered to create the term co-occurrence network visualization, shown in Figure 5. Seven terms were detected by the VOSviewer and automatically connected them with lines based on how often those terms occurred in the articles. Further, they were categorized into four clusters shown in different colors. These connecting lines indicate a relationship between terms, and clusters denoted by colors indicate common themes. These common themes were identified by analyzing the findings of each article to identify their similar characteristics. The findings of each article are explained under those common themes below.

Cluster 1-Red – E-HRM Intention: The intention for E-HRM is referred to the desire or willingness to use the E-HRM (Giri *et al.*, 2019). Since there were four terms, effectiveness, effort expectancy, performance expectancy and social influence, categorized into this cluster, they are said to be represented intention for E-HRM. Because perceived effort expectancy, perceived effectiveness or performance expectancy (Al-Ajlouni, 2020; Al-Harazneh and Sila, 2021) and social influence (Obeidat, 2017; Mahfod *et al.*, 2018) have been proven to be the determinants of E-HRM intentions.

The terms with less than five occurrences in abstracts found other determinants for E-HRM intention. They include perceived usefulness, perceived ease of use (Rawashdeh *et al.*, 2021), subjective norms, perceived innovativeness (Noerman *et al.*, 2021), and habits (Al-Ajlouni, 2020), attitude and satisfaction of E-HRM (Yusliza and Ramayah, 2012).

Cluster 2-Green – Communication Technology support: This cluster had three terms; communication technology, e-HRM and usefulness. These represent the use of communication technology in implementing the E-HRM (Rathee and Bhuntel, 2021). Thus giving a theme for this cluster as communication technology support is reasonable.

Additionally, analysis of terms less than five occurrences in abstracts found other types of support. They include organizational information system (IS)-related support (Ibrahim *et al.*, 2019) and web-based technological innovations (Bissola and Imperatori, 2013).

Cluster 3-Blue-Outcomes: The only term included in this cluster of more than five occurrences of terms was HR service quality (Wahyudi and Park, 2014; Iqbal *et al.*, 2018; Nurlina *et al.*, 2020). Organizational effectiveness, competitive advantage (Obeidat, 2017; Iqbal *et al.*, 2019a, b) and employee productivity (Iqbal *et al.*, 2019) are the other outcomes found from the analysis of terms less than five occurrences.

3.4 Conceptual framework development
This section addresses the second objective of the study. Concerning the information mentioned in section 3.3, it is evident that the prevailing empirical knowledge is about the
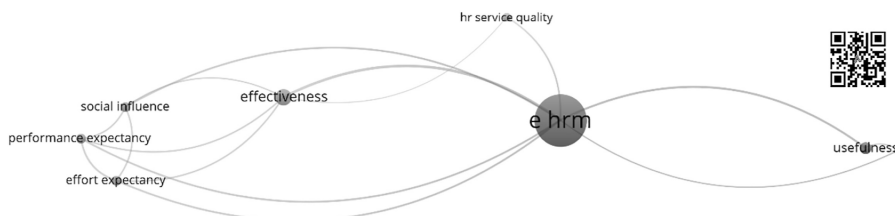

Figure 5.
Term co-occurrence
network

determinants and outcomes of E-HRM rather than the same of the disruptive technologies for HRM. This further confirms the finding of Priyashantha *et al.* (2022a, b, c). A conceptual framework was derived by incorporating the two most common determinants and four outcomes, as disruptive technologies for HRM are the prevailing technology that offers more advantages (Aronica, 2014; Agarwal and Kapoor, 2020; Priyashantha *et al.*, 2022a, b, c) and lack evidence of determinants and outcomes in the literature. It is shown in Figure 6. The independent variables are intention for disruptive technologies for HRM and communication technology support. Mediating variable is the adoption of disruptive technologies for HRM. Along with that, the dependent variable is the outcomes. The interrelationships of these variables are given in two perspectives as follows.

Perspective 1. Relationship of intention for disruptive technologies for HRM and communication technology support with disruptive technologies for HRM.

The theory of planned behavior postulates that intention impacts behavior (Ajzen, 1991). One significant component of the UTAUT (Venkatesh *et al.*, 2003) and the technology acceptance model (TAM) (Davis and Davis, 1989) is the intention that impacts the use or adoption of technology. Prevailing empirical literature proves that the E-HRM intention impacts the E-HRM use or adoption (Moghavvemi, 2017; Giri *et al.*, 2019). The desire or willingness for E-HRM is the intention (Davis and Davis, 1989; Moghavvemi, 2017; Giri *et al.*, 2019), whereas the decision to use or launch E-HRM is referred to as the E-HRM adoption. As the red cluster highlights, the E-HRM intention is determined by factors of perceived effort expectancy, perceived effectiveness or performance expectancy (Al-Ajlouni, 2020; Al-Harazneh and Sila, 2021) and social influence (Obeidat, 2017; Mahfod *et al.*, 2018). Additionally, perceived usefulness, perceived ease of use (Rawashdeh *et al.*, 2021), subjective norms, perceived innovativeness (Noerman *et al.*, 2021) and habits (Al-Ajlouni, 2020), attitude and satisfaction of E-HRM also found to be the determinants of E-HRM intentions (Yusliza and Ramayah, 2012). Based on these notions, as contemporary technology for HRM is the disruptive technologies for HRM, it can be deduced that the intention for disruptive technologies for HRM has a causal relationship with adoption of disruptive technologies for HRM.

The facilitative conditions are one component of the UTAUT model (Venkatesh *et al.*, 2003). It is referred to as the degree to which an individual believes that a technical infrastructure exists to support the use of technology innovations (Venkatesh *et al.*, 2003). Based on this idea, communication technology support can be treated as a facilitative condition. They include organizational information system (IS)-related support (Ibrahim *et al.*, 2019), fast Internet connectivity and web-based technological innovations (Bissola and Imperatori, 2013) or, in other words, providing communication technology infrastructure (Mathieson, 1991). Empirical research mentioned in cluster 2 (green cluster) reveals that the use of communication technology organizational IS-related support (Ibrahim *et al.*, 2019) and web-based technological innovations (Bissola and Imperatori, 2013) aid in the adoption of the
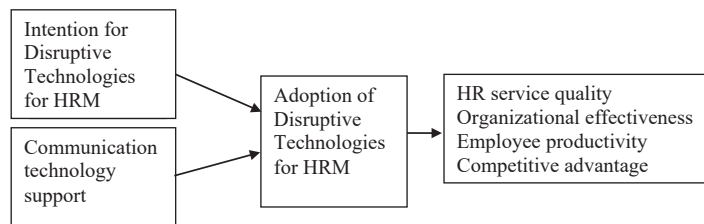

Figure 6.
Conceptual framework

Source(s): Author's conception (2022)

E-HRM (Rathee and Bhuntel, 2021). Contemporary thought highlights that fast Internet connectivities and mobile technologies are a vehicle for disruptive technology for HRM adoptions (Waddill, 2018). Thus it can be deduced that communication technology support has a causal relationship with the adoption of disruptive technologies for HRM.

Perspective 2. Adoption of Disruptive Technologies for HRM creates positive outcomes for the organization.

The RBV theory postulates that proving resources can gain positive results (Wernerfelt, 1984). Thus proving technology resources such as E-HRM or disruptive technologies for HRM may create positive outcomes for the organization. The empirical research found that HR service quality (Wahyudi and Park, 2014; Iqbal *et al.*, 2018; Nurlina *et al.*, 2020), organizational effectiveness, competitive advantage (Obeidat, 2017; Iqbal *et al.*, 2019a, b) and employee productivity (Iqbal *et al.*, 2019) were the positive outcomes of E-HRM adoption. Based on these pieces of information, it can be deduced that adoption of disruptive technologies for HRM creates positive outcomes for the organization.

4. Discussion

Disruptive technologies for HRM are regarded as the technology that can change the entire HRM landscape. This research mainly looked into the areas addressed in an empirical investigation during the period 2000–2020. Seventeen of the total 146 articles retrieved through Scopus and LENS.ORG were screened through the PRISMA article selection guidelines used for this review. The methodology adopted was the SLR. It is an objective technique using scientific and quantitative techniques to review the literature rather than subjective reviewers' interpretations.

Since the study's first objective was to identify the themes of HRM technology empirically researched, the term co-occurrence analysis of VOSviewer software was used in this task. Based on the term co-occurrence analysis result, the terms clustered into three categories represented the three common themes. They include E-HRM intention, communication technology support and outcomes. These findings highlight one important thing. That is, the researchers focus on E-HRM rather than disruptive HRM technologies. It implies that disruptive technologies for HRM have not been addressed in the empirical research landscape during the period of our concern.

Concerning the E-HRM intention, perceived effectiveness, effort expectancy, performance expectancy and social influence (Obeidat, 2017; Mahfod *et al.*, 2018; Al-Ajlouni, 2020; Al-Harazneh and Sila, 2021) are the determinants of E-HRM intention. Additionally, perceived usefulness, perceived ease of use (Rawashdeh *et al.*, 2021), subjective norms, perceived innovativeness (Noerman *et al.*, 2021), employee habits (Al-Ajlouni, 2020), attitude and satisfaction with E-HRM (Yusliza and Ramayah, 2012) are also found to the determinants of E-HRM intention. Concerning the theories related to these determinants, the TAM (Davis and Davis, 1989) included perceived usefulness and ease. Additionally, the subjective norm is addressed by the TAM 2 model. The UTAUT (Venkatesh *et al.*, 2003) model includes the performance expectancy and habits, effort expectancy, social influence and facilitative conditions. The innovation of diffusion theory (Rogers, 1962) addresses perceived innovativeness. The attitude and satisfaction are addressed by the technology continuance theory (Liao *et al.*, 2009).Thus all the determinants are addressed by the theories and provide sound theoretical grounding to determine the E-HRM intention.

Communication technology infrastructure development is essential in implementing the E-HRM. Thus, communication technology support (Rathee and Bhuntel, 2021), organizational IS-related support (Ibrahim *et al.*, 2019) and web-based technological innovations (Bissola and Imperatori, 2013) is also a determinant of E-HRM adoption. Otherwise, the expected outcome

and the interest in the E-HRM will be reduced. Concerning the theories related to the communication technology infrastructure development, all these supports and innovations are addressed by the facilitative condition in the UTAUT model (Venkatesh *et al.*, 2003). Thus, this determinant is significantly supported by solid theoretical findings.

The outcome variables of E-HRM adoptions found were HRM service quality (Wahyudi and Park, 2014; Iqbal *et al.*, 2018; Nurlina *et al.*, 2020), organizational effectiveness, competitive advantage (Obeidat, 2017; Iqbal *et al.*, 2019a, b) and employee productivity (Iqbal *et al.*, 2019). These were the only variables that were subjected to investigations during the period. This phenomenon is discussed in the RBV theory (Wernerfelt, 1984), where more resource provisions to employees can result in positive organizational outcomes.

The study's second objective was to develop a conceptual framework for the antecedents and outcomes of disruptive technologies for HRM. Such a framework was targeted to develop as the disruptive HRM technology is the prevailing technology for HRM, lack of evidence relating to its determinants and outcomes and aiding framework for empirical investigations. Thus, the antecedents and outcomes of disruptive technologies for HRM were deduced based on prevailing theatrical underpinnings and the empirical investigations done during the period. For that, two perspectives were presented.

One component of the first perspective is the intention of disruptive technologies for HRM causes the adoption of disruptive technologies for HRM. It was theoretically grounded by the "intention impacts behavior" component in the theory of planned behavior (Ajzen, 1991). More specific theories relating to technology intention and adoption are the UTAUT (Venkatesh *et al.*, 2003) and TAM (Davis and Davis, 1989). Thus, technology intention impacts the technology adoption component of both these models were used to support the causal relationship between the intention of disruptive technologies for HRM and the adoption of disruptive technologies for HRM. Additionally, the same causal relationship was deduced by the empirical findings relating to E-HRM intention impacts on E-HRM adoption (Al-Ajlouni, 2020; Al-Harazneh and Sila, 2021; Mahfod *et al.*, 2018; Noerman *et al.*, 2021; Obeidat, 2017; Rawashdeh *et al.*, 2021; Yusliza and Ramayah, 2012).

The other component of the first perspective was the causal relationship between communication technology support and the adoption of disruptive technologies for HRM. It was grounded by the component of facilitative conditions of the UTAUT model (Venkatesh *et al.*, 2003). The facilitative conditions are technical infrastructure that supports the adoption of technology innovations (Venkatesh *et al.*, 2003). Thus, communication technology support can be treated as a facilitative condition. They include communication technology infrastructure (Mathieson, 1991), such as IS-related support (Ibrahim *et al.*, 2019), fast Internet connectivity, web-based technological innovations (Bissola and Imperatori, 2013) and mobile technologies (Waddill, 2018) can be treated as facilitative conditions. Thus, they cause disruptive technology for HRM adoptions.

The second perspective is about the causal relationship between adopting disruptive technologies for HRM and the positive outcomes for the organization. It was supported by the RBV theory (Wernerfelt, 1984). According to this theory, adopting technologies for HRM is expected to create positive outcomes. It was evident in the empirical literature that E-HRM adoption has resulted in HR service quality (Wahyudi and Park, 2014; Iqbal *et al.*, 2018; Nurlina *et al.*, 2020), organizational effectiveness, an advantage in competition (Obeidat, 2017; Iqbal *et al.*, 2019a, b) and employee productivity (Iqbal *et al.*, 2019). This information resulted in deducing that the adoption of disruptive technologies for HRM creates positive outcomes for the organization.

Instead of determinants discussed in perspective 1, there may be other determinants such as organizational and contextual factors. Since adopting disruptive technology for HRM is an organizational change that happens through traditions of consultancy or enterprise development motivations (Rowe and Brook, 2022). However, there is evidence that

organizational changes can happen through action learning (Zabiegalski and Marquardt, 2022) and work-applied learning (Zuber-Skerritt and Abraham, 2017; Brook and Abbott, 2022). Furthermore, work-applied management learning (Fergusson, 2022; Quew-Jones and Rowe, 2022) such as workplace mentoring, counseling and collaborative support in a changing context, help adopt the change (Quew-Jones and Rowe, 2022). This action learning and work-applied learning of managers and employees in organizations may suggest adopting disruptive technologies for HRM as it is the prevailing technology in organizational agility, flexibility and ambidexterity. Such a suggestion is further grounded by a solid theoretical foundation in the second perspective that more benefits or outcomes are consequence from disruptive technologies for HRM. The second perspective could also motivate policymakers to adopt the HRM's disruptive technologies.

Other than that, there were some limitations of the study. One includes a limited number, in this case, 17 articles. That may be because of using only two databases for article retrieval. More articles could be downloaded if the articles were downloaded from other databases. The other one is the inclusion of only the empirical studies for the review. If these limitations were overcome, the results could be different.

5. Conclusion

Disruptive technologies for HRM are viewed as a prominent facilitator to benefit the entire employee life cycle, from recruitment to retirement. As disruptive technologies for HRM is the prevailing technology, many viewpoints are presented that it has more advantages and lacks evidence about synthesizing its antecedents and outcomes in the empirical research landscape. Thus, a review study was conducted based on the SLR methodology. It was based on addressing two objectives: (1) to identify the themes of HRM technology empirically researched and (2) to develop a conceptual framework for the antecedents and outcomes of disruptive technologies for HRM. Seventeen articles published between 2000 and 2020 were included for the review from a total of 146 using PRISMA-compatible inclusion and exclusion criteria. All of the articles were obtained from the Scopus and LENS.ORG databases.

The review findings reveal that the E-HRM intention and communication technology support impacts E-HRM adoption, resulting in outcomes. The intention includes perceived effectiveness, effort expectancy, performance expectancy and social influence. Furthermore, perceived usefulness, perceived ease of use, subjective norms, perceived innovativeness, employee habits, attitude and satisfaction with E-HRM are determinants of E-HRM intention. Regarding the outcomes, HR service quality, organizational effectiveness, competitive advantage and employee productivity have been investigated. A conceptual framework was developed based on the gaps identified regarding the determinants and outcomes of disruptive technologies for HRM. Thus, the conceptual framework for determinants and outcomes of disruptive technologies for HRM was deduced and presented from two perspectives. The perspectives were deduced with review results and theoretical grounds.

6. Implications and future research agenda

Since the current study developed a conceptual framework, it can be treated as the main theoretical implication of the study. The perspectives deduced based on the conceptual framework would help understand the determinants and possible outcomes of disruptive technology for HRM. Concerning the determinant of intention that impacts behavior, the theory of planned behavior (Ajzen, 1991), the UTAUT (Venkatesh *et al.*, 2003) and TAM (Davis and Davis, 1989) models are validated. Concerning the determinant of information technology support, facilitative conditions of the UTAUT (Venkatesh *et al.*, 2003) can be validated. The RBV theory (Wernerfelt, 1984) can be validated regarding the outcomes. Moreover, the areas such as E-HRM intention (in Cluster 1-Red), communication technology

support (in Cluster 2-Green) and outcomes (in Cluster 3-Blue) identified from the review can be used as dimensions for measurement instrument development for the constructs in the proposed conceptual framework.

Regarding the practical implications, practitioners can use the findings to make policy decisions for E-HRM. Since the prevailing technology is the disruptive technology for HRM in the trendy organizational agility, flexibility and ambidexterity, which has broader advantages than the E-HRM (Waddill, 2018), findings imply adopting the disruptive technologies for HRM. Besides, different action (Zabiegalski and Marquardt, 2022) and work-applied (Zuber-Skerritt and Abraham, 2017; Brook and Abbott, 2022) learning initiatives may suggest the adoption of disruptive technologies for HRM as they are grounded by industry analysts' and experts' perspectives (Bersin, 2017b; Juo, 2017; Ulrich, 2017; Karan, 2020). Moreover such a suggestion may also be grounded by the theoretical foundation presented in the second perspective of the current study.

Additionally, the findings provide implications for future researchers. As the current study included only 17 articles for the review, one significant implication is the limited research on the area studied (Priyashantha et al., 2022a, b, c). Similar reviews can target more databases on the same search terms used in the current study. Another important implication is that the proposed conceptual framework can be empirically tested. In other empirical investigations, researchers could investigate whether there is any mediating impact between the variables in the proposed framework.

Other than those, another vital implication is the many untapped areas of disruptive technologies for HRM in the research landscape. There are many applications of disruptive technologies for HRM nowadays for almost all HRM functions. Even though industry experts view that disruptive technologies for HRM have caused a change in the entire HRM landscape, minimal applications of disruptive technologies for HRM functions have been researched (Priyashantha et al., 2022a, b, c). They can be targeted for research. Alternatively, researchers can focus on many other determinants or outcomes of the adoption or intention for disruptive technologies HRM.

Adopting disruptive technologies for HRM may depend on various factors, including action (Zabiegalski and Marquardt, 2022) and work-applied (Zuber-Skerritt and Abraham, 2017; Brook and Abbott, 2022) learning initiatives. It was discussed in section four, and future studies could concentrate on these elements to conduct empirical tests.

Employee disengagement (80%) and workplace stressors such as role conflicts and health and safety difficulties are highlighted in global surveys (Gallup, 2021). These difficulties must be addressed as soon as possible (Priyashantha et al., 2022a, b, c). There is a belief that incorporating HRM technologies into the workplace can help to reduce these concerns (Turner, 2020). Our review found no studies investigating such sociological phenomena of disruptive technologies for HRM. Future researchers could focus on these areas for their research.

Likewise, future researchers have many implications from this study to include in their research agendas. Those will ultimately help to create sound knowledge on disruptive technologies for HRM.

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