

Systematic literature review on the digital transformation of the personnel selection process

German Journal of
Human Resource Management
1–32

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Abstract

Digital Transformation technologies (DT technologies) are reshaping work processes, including personnel selection, an area traditionally viewed as inherently human-centric. While prior studies have examined various digital technologies in personnel selection, they have not provided sufficient evidence on the different levels of digitalization in selection processes and the factors influencing organizations' adoption decisions. To address these gaps, this study systematically reviews 94 Scopus-indexed studies to analyze how DT technologies are applied across selection stages, categorizing practices into Manual, Digitalized, and Digitally Transformed approaches. By further distinguishing between Digital Technologies and AI Enhancements, this study offers a structured framework for understanding how organizations integrate digital technologies into selection and what drives or hinders their adoption. The findings highlight both the benefits (efficiency gains, potential bias reduction, improved candidate experience) and challenges (ethical concerns, algorithmic bias, technical and cultural barriers, and candidate perceptions) associated with these technologies, providing insights for both academic research and HR practice.

Keywords

Artificial intelligence, digital transformation, digital transformation technologies, human resource management, personnel selection, recruitment

Introduction

New technologies are changing the world and have an impact on all aspects of our daily lives. In his 2017 book “Homo Deus,” historian and philosopher Yuval Noah Harari imagined a future where humans entrust decision-making authority to algorithms for their most significant life decisions such as whom to marry (Harari, 2017). While this

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type of matchmaking might not be widespread in our private lives yet, it is already reshaping how organizations evaluate and select candidates for jobs.

In the past, the success of the recruitment and selection processes was highly dependent on human recruiters. However, in recent years, artificial intelligence (AI) and other digital technologies have emerged as significant players in this domain. While there is still confusion among employers about which technologies to use and how to implement them effectively (Abdul et al., 2020), adaptation will be essential for maintaining competitiveness. The Society of Human Resource Management (SHRM) selected AI as a top technology trend and a key driver of human resource management (HRM) innovation (Johnson et al., 2021), emphasizing that early adoption can lead to more data-driven, optimized hiring decisions.

Digital technologies have not only enhanced but fundamentally reshaped personnel selection, and they continue to evolve rapidly. While numerous studies have explored the role of technology in HRM, the landscape remains dynamic, with new tools and applications constantly emerging (Kim et al., 2021; Potočnik et al., 2021). Existing reviews have examined Industry 4.0 technologies in HRM (Pillai et al., 2022) or focused on narrow topics such as AI applications (Charlwood and Guenole, 2022; FraiJ and László, 2021), ethical concerns (Albaroudi et al., 2024; Köchling et al., 2021), or regional variations (Batool et al., 2023; Chilunjika et al., 2022; Pandya and Al Janahi, 2021). However, no prior review has systematically analyzed how digital transformation technologies (DT technologies) collectively influence personnel selection across different stages.

This study builds on previous literature while addressing a critical gap: the lack of a structured framework categorizing the evolution of digital hiring technologies. Unlike broader HRM-focused reviews (Garg et al., 2022; Tambe et al., 2019; Votto et al., 2021), which often touch on selection only briefly, this study provides a dedicated focus on personnel selection, distinguishing it from recruitment. By conceptualizing the transition from Manual Practices to Digitalized and Digitally Transformed Practices, this review offers a novel lens for understanding digitalization's impact beyond isolated tool adoption.

Despite the growing body of literature, a persistent research-practice gap remains. Fisher et al. (2021) highlight that while there is extensive research into recruitment and selection, the real-world impact of new technologies is still unclear, with many organizations hesitant to implement scientific findings (Deters, 2022). By separating recruitment from selection, this study addresses this gap, focusing on the application of digital technologies across different selection stages and offering practical insights for HR practitioners.

Furthermore, while existing studies often explore either the challenges or the motivations associated with digital selection tools (Fritts and Cabrera, 2021; Johnson et al., 2021; Köchling et al., 2021), few address both aspects comprehensively. This paper bridges this divide by examining both the barriers and benefits of digital hiring solutions, helping researchers and practitioners critically assess their limitations and opportunities.

This work scientifically reviews existing literature aiming to address the above mentioned gaps by answering the following research questions:

- Which digital transformation (DT) technologies are employed in the personnel selection process?
- How are these technologies applied across selection procedures, and which specific stages or tasks do they facilitate?
- What are the primary concerns and challenges associated with the implementation and utilization of DT technologies?
- What are the key advantages and motivations for organizations to adopt DT technologies?

A total of 94 Scopus-indexed papers on the digital transformation of personnel selection were reviewed to map current applications, identify challenges and benefits, and propose future research directions. The findings indicate that a diverse array of technologies is utilized, with many being AI-Enhancements (Artificial Intelligence Enhancements) and playing a pivotal role at every stage of personnel selection. Building on existing digital transformation frameworks, this study conceptualizes the evolution of selection technologies into three distinct stages: Manual Practices, Digitalized Practices, and Digitally Transformed Practices. This framework highlights that digital transformation technologies in selection not only encompass entirely new innovations but also include existing tools enhanced with AI capabilities. Additionally, this review identifies four major challenges (legal and ethical concerns, algorithmic biases, technical and cultural barriers, and candidate perceptions) and three primary benefits (increased efficiency, reduced bias, and enhanced employer branding and candidate experience).

By offering a structured framework for understanding digital transformation technologies in hiring and their implications, this study contributes to both academic and professional discussions, bridging research gaps and providing practical insights for HR practitioners navigating personnel selection in an increasingly digital landscape.

Research background

The personnel selection process

While the word “human” in human resource management might lead some to believe that digital transformation has a limited role in this function, it is, in fact, driving significant changes across all HRM processes (DiRomualdo et al., 2018), impacting even areas like recruitment and selection and equipping organizations with new ideas to enhance their competitive advantage in a global talent market. Operating in this competitive landscape, organizations access various resources that can contribute to a competitive edge, yet many are easily acquired by competitors. A primary factor in human resource management’s (HRM) evolution from tactical to strategic activity (van Esch and Black, 2019) was that people are one of the few intangible resources that are challenging for competitors to imitate (Black and van Esch, 2021; Stanley and Aggarwal, 2019). With human resources being key to achieving a lasting competitive edge, it is hardly surprising that the expression “war for talent” still accurately describes the global labor market more than 20 years later after the phrase was coined (Black and van Esch, 2021).

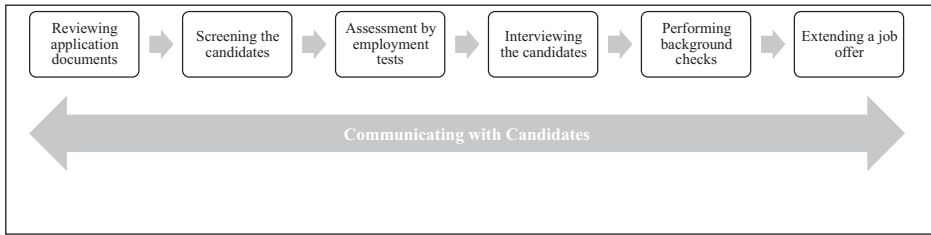


Figure 1. Stages of the personnel selection process.

Source: Own compilation based on Newell (2005).

In this context, human resource management must strategically utilize its various functional areas to attract and secure top talent, with recruitment and selection being among the most essential. Recruitment is the process of attracting individuals with the right qualifications, in a timely manner and in adequate numbers, to apply for positions within an organization, while selection involves choosing from among these applicants the individual who is the best fit for both the specific role and the organization as a whole (Gusdorf, 2008; Lievens et al., 2010; Newell, 2005). For those outside the HR field, recruitment and selection are often conflated but, as noted by Sołek-Borowska and Wilczewska (2018), HR professionals often debate their distinction, with some viewing selection as a recruitment stage focused on evaluating all candidates, while others see it as a separate process dedicated to choosing the best fit for the role. This paper treats the recruitment and selection processes as two distinct stages, each with its own unique objectives and focuses specifically on the latter, the selection phase.

The personnel selection process has been extensively studied over time by numerous researchers (Azmy, 2018; Gaikwad and Vaishnav, 2022; Kroll et al., 2021; Newell, 2005). While various approaches exist, most studies agree on the key stages that define this process.

It begins after the recruitment phase, once all application documents have been received, and proceeds with reviewing resumes and screening candidates who appear to fit the role based on their submitted materials. If applicable, an employment test is also sent out before a candidate is invited to one or more rounds of in-person or online interviews. After the interview, in many countries candidates undergo reference, background and sometimes even medical checks and only after successfully passing these tests is the most suitable candidate offered the job. Figure 1 illustrates the stages of the personnel selection process.

The role of technology in personnel selection

The intersection of technology and HRM is not entirely new. While HRM began adopting technological tools in the 1940s (DeSanctis, 1986), it often lagged behind other functions. Only in the 1990s did HRM fully recognize technology's benefits, with theoretical and empirical research remaining limited until recently (Johnson et al., 2016; Potočník et al., 2021). The 2010s marked a turning point, as advanced technologies began driving digital transformation and reshaping business processes (Braña, 2019).

Before examining these technologies in detail, it is necessary to distinguish between digitalization, the process of converting analog information into digital form (also called digitization e.g. scanning paper documents) and using digital technologies to enhance existing processes (e.g. automating document management), and digital transformation, which goes beyond process improvement to create entirely new ways of working (Móricz et al., 2022; O'Leary, 2023). Studies by Nambisan et al. (2017) and Verhoef et al. (2021) further emphasize that the term “digital transformation” encompasses more than merely converting data from physical to digital formats; it signifies a comprehensive shift toward leveraging digital technology to drive innovation in market offerings, reshape business processes, and redefine business models.

The swift progression of digital tools has transformed various HR functions, particularly the selection process, where the evolution of technology can be understood through distinct stages identified in the literature: Manual Practices, Digitalized Practices, and Digitally Transformed Practices. These stages are adapted from the broader framework of analog, digitalized, and digitally transformed approaches frequently discussed in studies on digital transformation (Móricz et al., 2022; Nambisan et al., 2017; O'Leary, 2023; Strohmeier, 2020; Verhoef et al., 2021). For the purpose of this review, the stages have been renamed to reflect their application in the personnel selection process while remaining consistent with the terminology used in prior research. In the Manual Practices stage (analog stage in the broader framework), processes are entirely analog, relying on human effort to complete tasks, such as manually reviewing paper resumes (DeSanctis, 1986). This stage represents the pre-digital era, where technology played no role in streamlining HR operations (Johnson et al., 2016). The transition to Digitalized Practices (digitalized stage in the broader framework) introduced tools that enhance efficiency by automating repetitive tasks, such as Applicant Tracking Systems (ATS) for automated resume screening (Johnson et al., 2016). This stage is characterized by the use of digital tools to optimize existing workflows without fundamentally altering their nature (Móricz et al., 2022). The third stage, Digitally Transformed Practices (digitally transformed stage in the broader framework), marks a fundamental shift in how HR processes are executed. Digital transformation goes beyond process enhancement—it redefines practices by introducing entirely new ways of working and delivering value (Móricz et al., 2022; O'Leary, 2023). For instance, in the context of reviewing application documents, AI-driven tools now automatically screen, rank, and even predict candidate performance. These tools do not just optimize workflows but also create opportunities for deeper insights and more strategic decision-making (Tambe et al., 2019).

Building on the framework of analog, digitalized, and digitally transformed practices, this paper adopts the term 'digital transformation technologies' (DT technologies) to more precisely describe the tools enabling digital transformation in HR processes. Although often categorized as “Industry 4.0 technologies,” the concept of Industry 4.0 is primarily associated with production and manufacturing processes, encompassing tools such as additive manufacturing and the Internet of Things (IoT; Braña, 2019). While relevant to certain domains, these technologies are only marginally applicable to human resource management. In contrast, DT technologies provide a more relevant lens for exploring the digital tools that have direct implications for HR functions. Particularly in personnel selection, DT technologies are central to enabling digital transformation

Table 1. Evolution of the selection process: from manual to digitalized practices.

Selection step	Manual practices	Digitalized practices
Reviewing application documents	Manual review of paper resumes and cover letters.	Automated screening with applicant tracking systems (ATS) using keyword searches.
Screening the candidates	Initial phone calls or brief, unstructured interviews to confirm interest and availability.	Automated screening tools like chatbots or asynchronous video interviews.
Assessment by employment tests	Paper-and-pencil tests administered on-site.	Online assessment tests.
Interviewing the candidates	In-person interviews requiring candidate travel and coordination.	Video interviews via platforms like Zoom, combined with interview scheduling tools.
Performing background checks	Manual contact with previous employers and institutions for verification.	Online platforms and databases supporting the background screening process.
Extending a job offer	Job offers extended by mail or in-person meetings, with paperwork handled physically.	Digital job offers shared via email or portals with e-signatures for remote acceptance.
Communicating with candidates	Manual communication through phone calls, letters, or in-person updates.	Automated email responses and rule-based chatbots for frequently asked questions.

Source: Own compilation.

because they fundamentally change how organizations operate, innovate, and interact with their environments. These technologies go beyond digitizing or automating processes; they reimagine them, enabling entirely new ways of working. This perspective aligns with the broader understanding of digital transformation as a paradigm shift that creates innovative solutions, disrupts existing practices, and drives socio-economic changes. DT technologies, as enablers of digital transformation, offer tools that not only optimize processes but also redefine business strategies and workforce dynamics.

To establish the current state of the selection process, the following paragraphs focus on the Digitalized Practices, which is where most organizations operate today. Table 1 outlines how digitalization has shaped key steps in the selection process, from reviewing application documents to communicating with candidates—while it is not exhaustive, it illustrates well the current technological trends identified by scholars.

Before digitalization, HR professionals manually reviewed paper resumes and cover letters. This task has since been streamlined with the introduction of Applicant Tracking Systems (ATS), software tools that help organizations digitally manage recruitment tasks by filtering resumes and identifying qualified applicants, significantly reducing administrative time (Nikolaou, 2021; Schick and Fischer, 2021). Initial screenings, once conducted via phone, are being automated using chatbots—designed to simulate human conversation—or asynchronous video interviews (AVI), which allow candidates to respond to pre-set questions, enabling recruiters to review responses on their own schedule (Folger et al., 2022; Koivunen et al., 2022). Employment tests, formerly paper-based

and on-site, are delivered through online platforms with game-like elements (gamification) that boost engagement and enable instant scoring and analysis (Pillai and Sivathanu, 2020; Stachová et al., 2021; Stander et al., 2022). Traditional in-person interviews have shifted to video conferencing tools like Zoom or Microsoft Teams, with automated scheduling systems simplifying coordination (Niehueser and Boak, 2020; Potočník et al., 2021; Yarger et al., 2019). Manual background checks, which once required contacting former employers and institutions and could take weeks, are now expedited through digital databases that provide results within hours (Yam and Skorborg, 2021). Furthermore, job offers previously shared in person or by mail, are delivered electronically via email or HR portals, with e-signature tools facilitating remote acceptance (Hunkenschroer and Luetge, 2022; Yam and Skorborg, 2021). Lastly, a crucial aspect of the process, continuous candidate communication, is still handled through phone calls or manually crafted emails at several organizations. However, tech-savvy employers leverage automated email responses to keep candidates informed at each stage of the process (Rožman et al., 2022; Turcu and Turcu, 2021), while chatbots handle frequently asked questions, providing immediate responses and enhancing the candidate experience (Chen, 2023).

The examples above illustrate the widespread adoption of Digitalized Practices in personnel selection. However, research on how organizations transition from Digitalized to Digitally Transformed Practices remains limited. While many tools improve efficiency, there is little exploration of how they can fundamentally redefine HRM processes, as well as their benefits and challenges for both organizations and candidates. To address this gap, this review examines the DT technologies used in recruitment and selection, their transformative potential, and the barriers to their adoption.

Research methodology and data analysis

This study is a literature review that followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) method to obtain the final articles. The PRISMA model aims to maximize the likelihood of discovering the most relevant literature by following three steps: identification, screening and inclusion (Liberati et al., 2009). The main focus of the paper is on the digital transformation of the personnel selection process. In alignment with this research objective, in the identification stage a search string was developed that consisted of three pieces. The first part of the string contained keywords relating to the recruitment and selection process, while the second piece helped identify publications about how digital technologies are applied. After the first searches, an additional third part was added to the string to better filter for the papers in the domain of HRM. The final combination of terms was chosen after testing multiple variations to ensure the most relevant results. Specifically, the phrase “selection process” was selected over the broader term “selection” to avoid retrieving unrelated studies (e.g. from decision-making or natural sciences), and HRM-related terms were used instead of “personnel” to align with modern recruitment research terminology.

A Boolean practice was used when constructing the search query. The search criteria were developed utilizing the “OR” operator for synonymous terms and the “AND” operator to link the three components of the search string. Parentheses were also applied to make a distinction between the HR-specific and digitalization-related terms, and the

search was limited to title, abstract and keywords. For this study, a comprehensive search on Scopus, Elsevier's citation and abstract database was found adequate as it guaranteed extensive coverage of peer-reviewed literature. The search was restricted to journal articles and reviews in the English language. Only publications after 2013 were included given that 95% of papers in the field have been published within the last decade.

The following search string was used on the Scopus database on December 2023:

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( recruitment OR "selection process" OR "talent management" OR "talent acquisition" ) AND  
( digital* OR "industry 4.0" OR "fourth industrial revolution" OR "machine learning" OR  
chatbot OR "artificial intelligence" ) AND ( "human resources" OR hr OR hrm OR employment  
OR employee )
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After removing duplicates, 453 unique documents were identified. These articles were exported, containing the title, abstract, authors' names and affiliations, journal name, cited numbers, year of publication and DOI to a Microsoft Excel sheet to perform the second step of the PRISMA method. In the screening stage, the titles and abstracts of the publications were reviewed. This was followed by reading the whole text of the selected articles to exclude all irrelevant papers. Articles from subjects unrelated to human resource management were excluded. The selection process mainly focuses on identifying and evaluating optimal candidates from the pool of applicants, therefore papers only relating to stages before applying to a position (e.g., job analysis, sourcing, job description writing, inviting candidates to apply) were excluded. Publications on technologies used for communicating with candidates during the screening, assessment and interview stages were included. One of the primary objectives of this review is to assess how DT technologies are leveraged in personnel selection. Hence, papers concentrating on algorithms developed by researchers but not yet implemented in practical settings were excluded. The inclusion step led to the creation of the study database, resulting in a final review size of 94 papers. Figure 2 summarizes the PRISMA model steps performed in this study.

To identify patterns and provide an integrated research agenda for the role of DT technologies in the selection process, I employed a qualitative coding method guided by the approaches of Anand et al. (2023), Paul and Criado (2020) and Salo (2017). This process involved systematically analyzing the corpus of the selected articles to address the study's primary research questions. Using an inductive coding approach, I categorized the literature into themes based on the following framework:

1. **Technologies:** Each technology discussed in the reviewed articles was represented individually, without creating broader themes, to provide a comprehensive overview of the digital tools mentioned in the literature.
2. **Use of Technologies:** Technologies were categorized according to their application in specific stages of the selection process, including reviewing resumes and application documents, screening candidates, conducting employment tests, interviewing, performing background checks, extending job offers, and communicating with candidates throughout the process.

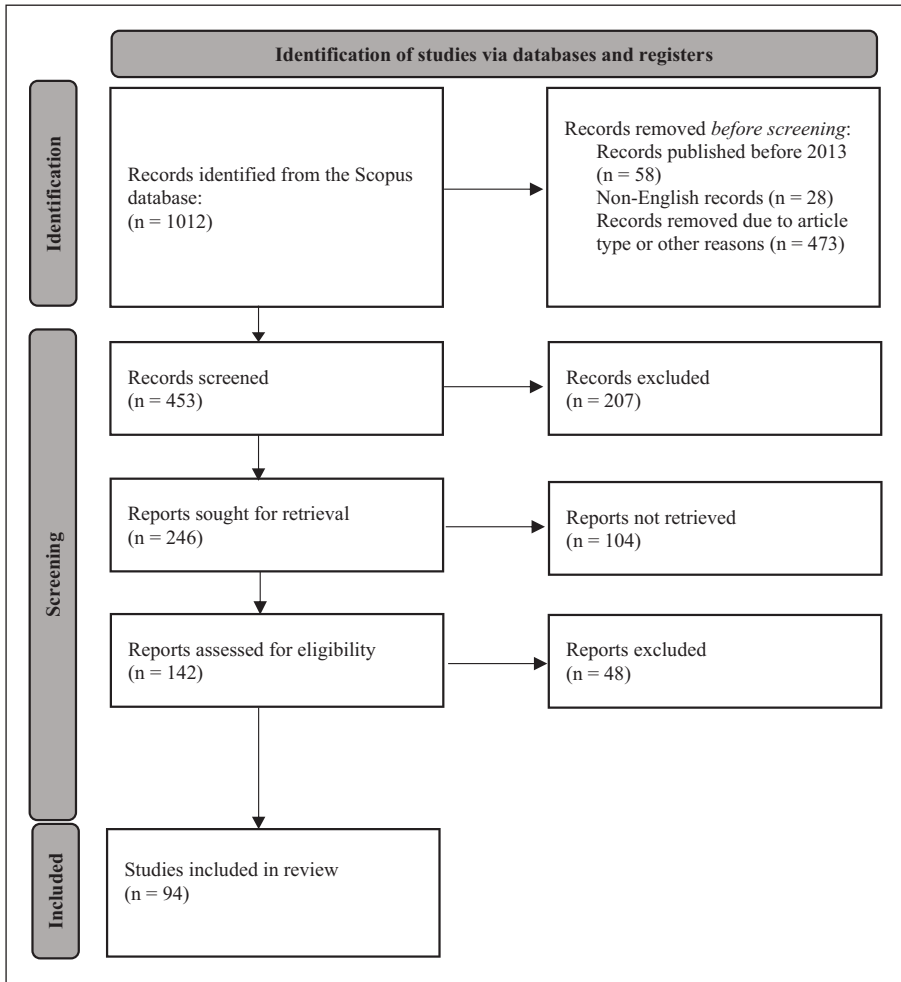


Figure 2. Systematic selection of the study database using PRISMA.

Source: Own compilation based on Page et al. (2021).

3. Concerns: The analysis revealed four main themes for the challenges associated with DT technologies: legal and ethical questions, biased algorithms, technical and cultural challenges, and candidates' perceptions.
4. Motivations: The analysis revealed four main themes driving the adoption of DT technologies: increased productivity and efficiency, elimination of bias, enhanced employer branding, and improved candidate experience.

This coding process allowed for a structured, theme-based presentation of findings, identifying recurring patterns and gaps in the literature while offering insights into the applications, challenges and potential of digital technologies in the selection process.

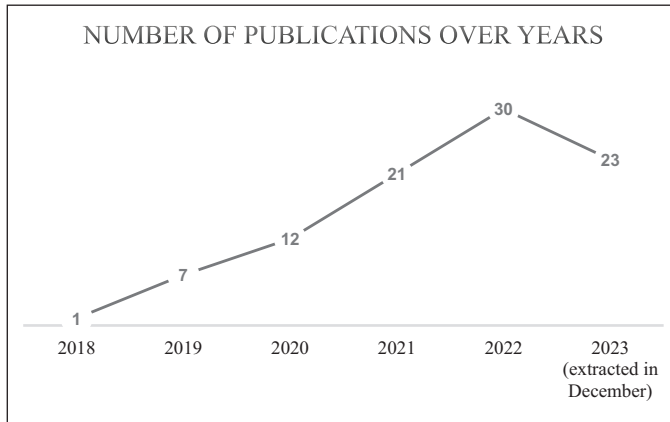


Figure 3. The number of reviewed articles by year of publication.

Source: Own compilation.

Findings

While the start date was set to 2013, the finalized list only contained publications after 2017. As depicted in Figure 3, there is a noticeable upward trend in the number of publications, indicating a growing interest in the topic among researchers. The reviewed papers were published in 80 unique sources, with “Frontiers in Psychology” contributing the most, having published three articles on the digitalization of the personnel selection process.

A notable pattern in the publication sources is the disciplinary distribution of the research. A third of the reviewed papers appeared in Information Systems (IS) journals, while the remaining publications were spread across various fields. Despite the HR-specific nature of the topic, only six papers were published in Human Resource Management (HRM) journals, indicating that much of the scholarly discussion on digitalized personnel selection is happening outside traditional HRM literature. The remaining publications appeared in psychology, business, ethics, and general management journals, reflecting an interdisciplinary but somewhat fragmented research landscape. The full list of the journals can be found in the Supplemental Material.

The following chapters present a detailed overview on utilizing DT technologies in personnel selection, as well as an examination of the challenges and motivations associated with their application in the selection process.

Technologies of digital transformation in the selection process

The Supplemental Materials attached to this article contain a table presenting the digital technologies identified in the reviewed papers, along with the corresponding articles that cite each technology and the number of citations for each. The primary aim of this literature review was not to quantify the frequency of digital technology appearances across the papers, but rather to showcase the range of technologies utilized in the personnel

selection process. This diversity reflects the broad spectrum of tools and innovations being applied to digitalize and digitally transform hiring practices. However, analyzing the frequency of mentions provided valuable insights into current research trends and areas of focus. Artificial Intelligence (AI) is among the most frequently cited technologies, appearing in 74 papers. While various studies define AI in different ways, this study adopts the definition by Tambe et al. (2019), which describes AI as a broad class of technologies that enable computers to perform tasks typically requiring human intelligence, such as adaptive decision-making. The high frequency of AI citations highlights its prominent role in personnel selection research and reflects the strong academic interest in its applications.

A closer look reveals that AI's influence extends beyond the 74 citations, as many publications also reference specific subsets of AI technologies. These include Machine Learning (ML, the development of algorithms that enhance their performance through learning from experience (Garg et al., 2022)), Natural Language Processing (NLP, a machine's ability to communicate effectively in human language, enabling it to understand speech and text and generate appropriate responses (Votto et al., 2021)), and Text Mining (a set of NLP-based techniques that extracts meaningful information from sources like webpages, documents, and emails (Tian et al., 2023)), among others. These technologies are rarely utilized in isolation but are often integrated as components of broader AI systems (Chen, 2023; Mirowska and Mesnet, 2022), enhancing capabilities such as Predictive Analytics (using statistical models to predict future trends or behaviors based on historical data (Giermindl et al., 2022)), Voice Interaction (a technology enabling communication with systems using spoken language (Rezzani et al., 2020)), and Recommendation Engines (suggesting content or products likely to interest customers or employees by analyzing their behavioral data and trends (Votto et al., 2021)).

Many publications in the reviewed literature use "AI" as an umbrella term, often without differentiating between specific technologies or their distinct functions in personnel selection. While this underscores the versatility and ubiquity of AI in this field, it also highlights a lack of clarity in distinguishing between general digital tools and AI-powered enhancements. To provide a clearer structure, Table 2 classifies the technologies identified in the reviewed papers into two categories: Digital Technologies and AI Enhancements. Digital Technologies refer to general digital tools used in personnel selection that are not necessarily AI-driven (e.g. Applicant Tracking Systems, Virtual Reality). In contrast, AI Enhancements are technologies that do not function independently but serve to enhance Digital Technologies through AI capabilities (e.g. Machine Learning, Natural Language Processing). For instance, a keyword-based chatbot, classified as a Digital Technology, can operate without AI, relying solely on predefined responses. However, NLP, as an AI Enhancement, cannot be understood as a standalone technology since it is fundamentally an application of AI principles.

The categorization of technologies into Digital Technologies and AI Enhancements provides a structured framework for understanding their respective roles in the digital transformation of the personnel selection process. By distinguishing between general digital tools and AI-powered enhancements, this classification helps clarify how AI contributes to selection processes rather than being treated as a broad, catch-all term. While many of these technologies, such as Applicant Tracking Systems (ATS) and Robotic

Table 2. Classification of digital technologies used in personnel selection.

Digital technologies	AI enhancements
Algorithmic decision making (ADM)	Data mining
Applicant tracking system (ATS)	Deep learning
Asynchronous video interview (AVI)	Facial recognition
Augmented reality (AR)	Intelligent robots
Big data analytics	Machine learning (ML)
Blockchain	Machine vision
Chatbot	Natural language processing (NLP)
Cloud computing	Predictive analytics
Data analysis/HR analytics	Recommendation engines
Decision trees	Text mining
Internet of things	Voice interaction
Gamification	
Robotic process automation (RPA)	
Robotics	
Social media	
Virtual reality (VR)	

Source: Own compilation.

Process Automation (RPA, software bots automating repetitive, rule-based tasks (Turcu and Turcu, 2021)), represent Digitalized Practices that primarily improve efficiency, others reflect the shift toward Digitally Transformed Practices, which fundamentally reshape how selection is conducted.

However, categorizing technologies into Digitalized Practices and Digitally Transformed Practices requires clear examples to illustrate their specific applications. For instance, a chatbot that answers frequently asked questions using predefined scripts represents a Digitalized Practice, as it enhances efficiency without fundamentally altering the process. In contrast, the same chatbot that conducts candidate screenings using AI-driven response analysis qualifies as a Digitally Transformed Practice, as it actively shapes decision-making. This distinction underscores that a technology's classification depends not only on its type but on how it is applied within the selection process. To better understand which tools qualify as Digital Transformation (DT) Technologies, it is valuable to examine their role across different stages of personnel selection. The next section explores these applications, identifying which selection stages these technologies facilitate and how they contribute to shaping the future of digital hiring.

Reviewing resumes and other application documents. Digitalization has facilitated job applications by allowing candidates to apply at any time and from any location, provided that positions are available online. While this increased accessibility benefits job seekers, it also places a greater administrative burden on employers, who must process a higher volume of applications. Companies can receive thousands of applications every day which makes reviewing the resumes a time-consuming responsibility of recruiters' (Köchling et al., 2021; Sithambaram and Tajudeen, 2023). One of the main advantages of using digital technologies in any field is that it can perform low value-add, repetitive

and heavy-volume activities (Geetha and Bhanu, 2018; Kaushal et al., 2023; Pandya and Al Janahi, 2021). Evaluating resumes is a prime example of such a task, which is why several companies delegate this responsibility to machines rather than humans. Robotic Process Automation-based solutions are capable of filtering resumes (Turcu and Turcu, 2021) while ML-based AI algorithms go one step further and learn from the qualities of existing employees. Then the algorithm applies this knowledge to new applicants, automatically ranking and shortlisting the best candidates (Hunkenschroer and Luetge, 2022). If the application documents are incomplete or more information is required about an applicant, AI can analyze social media profiles and extract those characteristics that are not identifiable solely from their resumes (Nawaz, 2019b; Nguyen and Park, 2022). Furthermore, AI-enabled applicant tracking systems (ATS) also aid recruiters in rediscovering previously rejected, but talented candidates, who could be a good fit for another role (Gethe, 2022; Hunkenschroer and Luetge, 2022; van Esch and Black, 2019).

Screening the candidates. If the candidate is not rejected by the recruiter or the hiring manager based on their Curriculum Vitae (CV), they progress to the screening phase, where specific questions are asked to better determine the ability of candidates. Instead of calling the candidates on the phone or arranging an online pre-screening video conference with them, recruiters can rely on technological tools to perform this task, eliminating the need for direct human involvement in these processes (Folger et al., 2022; Kim and Heo, 2022). The screening activity serves as a perfect example to illustrate how AI can enhance existing technologies and therefore digitally transform this stage of personnel selection. Using asynchronous video interviews as an example, we can talk about digitalization when these tools are used to replace traditional in-person interviews with video recordings, allowing candidates to respond to predefined questions at their convenience (Mirowska and Mesnet, 2022). This approach enhances efficiency by reducing scheduling conflicts and enabling recruiters to review responses at their convenience (Gonzalez et al., 2022), but it does not fundamentally change the nature of the screening process.

On the other hand, we can talk about digital transformation when AVIs are integrated with AI-driven technologies, such as Natural Language Processing and emotion recognition software (Roemmich et al., 2023), to analyze candidates' responses, tone, and facial expressions. More advanced AI tools are even capable of recognizing patterns and they can continuously learn by analyzing the available data (Votto et al., 2021). In this context, AVIs are not just a tool for recording responses; they become a data-driven decision-making platform that redefines the interview process by providing insights that were previously unattainable, such as predicting cultural fit or communication style based on nuanced behavioral cues. While the screening process can easily be delegated to existing technologies like AVIs and chatbots (Koivunen et al., 2022; Nguyen and Park, 2022), the aforementioned example illustrates well how AI-powered solutions embody the "DT" characteristic of these technologies.

Assessment by employment tests. To better evaluate candidates for a particular job or role, some companies also require applicants to complete general (e.g. IQ test or personality test) or job-specific assessment tests. Traditionally, these tests were performed on-site

but digitization enabled the completion of these tasks online (Folger et al., 2022). Based on the reviewed papers, advanced digital tools like Augmented Reality and Virtual Reality technologies, the former overlaying digital information onto the real world and the latter immersing users in a fully artificial environment (Zhao et al., 2019), are taking personality and ability testing to the next level (Chugunova and Danilov, 2023). Adding game-like elements to assessment tests (known as gamification) have proved useful in reducing the number of test-takers engaging in cheating behaviors (Stachová et al., 2021). This positive effect can be amplified by implementing AI-powered skill tests, simulations, and video games designed using principles from neuroscience (Gethe, 2022; Hunkenschroer and Luetge, 2022). ML-based AI systems can even create such computer adaptive tests, which customize test items for each individual test taker (Johnson et al., 2021). Similarly, AI can be utilized to analyze all data from the screening and assessment stages in order to enable HR professionals to ask specific questions based on the AI's results (Indarapu et al., 2023).

Interviewing the candidates. Prior to exploring the transformation of job interviews through digital technologies, the process of interview scheduling must be addressed. Several papers (Köchling et al., 2023; Nawaz, 2020; Raş-Kettler and Lehnervp, 2019) mention this task as a time-consuming activity that can easily be automated by existing technologies like chatbots or RPA (Turcu and Turcu, 2021). These tools exemplify digitalization, as they streamline and automate repetitive scheduling tasks, enhancing efficiency without fundamentally altering the scheduling process. However, the integration of AI technology into interview scheduling elevates this process from digitalization to digital transformation. Unlike traditional automation tools, AI-powered systems can dynamically optimize scheduling by considering real-time factors (Pillai and Sivathanu, 2020), such as interviewer availability, candidate preferences, and scheduling conflicts. Niehueser and Boak (2020) provide an illustrative example: in one organization, conducting interview scheduling manually could take up to 2 weeks, but with the implementation of AI, the average processing time was reduced to just 7 minutes. This significant reduction in time exemplifies how AI not only enhances efficiency but also redefines the task itself, transforming a traditionally time-intensive process into a seamless, intelligent operation.

While many candidates accept the utilization of AI and similar advanced technologies during the initial stages of the selection process (Nawaz, 2019a), they still prefer human interviewers over autonomous AI tools for conducting job interviews (Folger et al., 2022; Mirowska and Mesnet, 2022). For the interview stage, similar findings can be observed as for the screening stage, indicating that the extent of AI technology usage can vary widely. This spectrum ranges from scoring an online interview based on the richness of candidates' vocabulary, speech rate and tone, or facial expressions (Chen, 2023; Lacroux and Martin-Lacroux, 2022; Yadav et al., 2023) to virtual chatbots autonomously conducting the entire interview (Folger et al., 2022). While digital transformation in the interview process, characterized by advanced technologies like AI analyzing responses and providing predictive insights, has the potential to fundamentally reshape interviews, it remains largely futuristic, with most organizations yet to adopt these tools at scale.

Performing background checks. To verify that a candidate is who they claim to be, companies often run background checks on the individuals that apply for certain positions. While digitalization has allowed these checks to be conducted through digital platforms, significantly speeding up the process by automating searches and aggregating data from various sources, it does not fundamentally alter the nature of the task. However, AI-driven tools like Social Intelligence by Fama can promote safer workplaces by verifying that prospective employees do not display hostile or offensive behaviors that would violate the hiring organization's code of conduct (Kong and Ding, 2024). In addition to running a full background check on past employment records (Almansoori et al., 2021), AI can analyze applicants' social media activities to identify potential risks related to behaviors such as workplace misconduct or violations of organizational policies (Pillai and Sivathanu, 2020; Yam and Skorburg, 2021). Besides AI-powered tools, Sharif and Ghodoosi (2022) argue that blockchain technology can also help with verifying the truth about potential employees and their background (Kumar et al., 2020; Sharif and Ghodoosi, 2022).

Extending a job offer and communicating with candidates throughout the process. The last step of the personnel selection process is issuing an offer letter to the most suitable candidate. In the contemporary job market, speed is a critical factor; organizations can streamline the creation and dissemination of job offers through rule-based algorithms, which automate these processes efficiently, even in the absence of AI (Hunkenschroer and Luetge, 2022). However, a more sophisticated approach can be achieved with the help of artificial intelligence, since AI-powered tools are capable of analyzing data to predict which candidate is most likely to accept the offer (Indarapu et al., 2023) and can draft an offer letter based on where the applicant lives (Yam and Skorburg, 2021).

Given the significance of time in recruitment and selection, it is relevant to briefly highlight the technologies utilized for contacting candidates and providing updates on the status of their applications. An extended selection process and delays in providing feedback can significantly undermine the candidate experience. To avoid this pitfall, many organizations have embraced digitalization by entrusting always available chatbots with giving the applicants feedback and keeping them informed (Johnson et al., 2021; Pandya and Al Janahi, 2021).

However, the potential of technology in this area extends beyond automation to digital transformation, where advanced AI-powered virtual assistants fundamentally redefine how candidates are engaged. These intelligent systems can enhance the candidate experience even further by promptly addressing less common questions in real-time and personalizing messages building on the individual characteristics of the candidate (Conte and Siano, 2023; Hunkenschroer and Luetge, 2022). This transition from standardized communication to personalized, dynamic interactions demonstrates the capacity of AI-driven technologies to enhance process efficiency while fostering improved candidate engagement.

Table 3 highlights the examples of Digitally Transformed Practices identified in each stage of the personnel selection process. Building on the earlier comparison of Manual Practices and Digitalized Practices, this table reflects how advanced technologies are fundamentally reshaping traditional HR tasks.

Table 3. Evolution of the selection process: digitally transformed practices.

Selection step	Digitally transformed practices
Reviewing application documents	AI-powered ATS evaluating and scoring resumes, extracting information from social media and rediscovering previously rejected candidates.
Screening the candidates	AI-based tools analyzing asynchronous video interviews, making recommendations and continuously learning from previous experience.
Assessment by employment tests	Gamified assessments leveraging innovative tools like VR, AR, and AI-powered systems, such as behavioral tracking, which provide deeper insights and reduce the potential for cheating compared to traditional paper-pencil tests.
Interviewing the candidates	AI-enhanced scheduling systems, AI-powered platforms analyzing responses in real time, virtual chatbots autonomously conducting entire interviews.
Performing background checks	AI-powered background checks for comprehensive screening and proactive approach to risk management, blockchain for secure, tamper-proof verification of credentials and employment history.
Extending a job offer	AI-driven offer acceptance prediction and personalization of offer letters.
Communicating with candidates	AI-powered communication tools that personalize updates and use predictive analytics to anticipate questions.

Source: Own compilation.

AI plays a pivotal role in the transition from Digitalized to Digitally Transformed Practices, serving as a central enabler in this shift. A key finding from the analysis of practical applications is that digital transformation in personnel selection is not always driven by entirely novel inventions. Instead, AI often enhances existing digital technologies, enabling them to be classified as Digital Transformation technologies (DT technologies).

Several authors use the term “AI-powered” to describe applications where conventional technologies are enhanced with AI capabilities, blurring the line between automation and transformation. For example, a chatbot providing standardized responses or an asynchronous video interview (AVI) platform collecting video submissions exemplifies Digitalized Practices, as these technologies streamline processes without fundamentally altering their nature. However, when AI is integrated into these tools – such as an AVI system evaluating and ranking candidate responses using Machine Learning (ML) or a chatbot personalizing interactions with Natural Language Processing (NLP)—these technologies evolve from functional automation tools into enablers of Digitally Transformed Practices. This distinction is supported by a growing body of literature, which highlights the transformative impact of AI-powered tools on traditional hiring practices (Hunkenschroer and Luetge, 2022; Nguyen and Park, 2022; van Esch and Black, 2019; Yadav et al., 2023).

These DT technologies, whether Digital Technologies enhanced by AI Enhancements or entirely new innovations, collectively point toward a future where personnel selection is not just optimized but fundamentally reimaged. As organizations continue to explore and implement these technologies, they have the potential to reshape the standards of candidate evaluation, engagement, and selection in the hiring process.

Challenges in employing DT technologies in the selection process

As detailed in the previous chapter, DT technologies have the potential to be utilized at every stage of the selection process, offering transformative applications that redefine traditional HR practices. Although these technologies offer transformative potential, their widespread adoption remains limited due to organizational hesitation. In the following pages, I will explore the reasons behind this hesitation, addressing the challenges and concerns that hinder the widespread adoption of DT technologies in the selection process. The primary concerns can be classified into the following four categories: legal and ethical questions, biased algorithms, technical and cultural challenges and candidates' perceptions.

Legal and ethical questions. In their definition on emerging technologies, Rotolo et al. (2015) emphasize that the full effects of these technologies are uncertain during the emergence phase (Rotolo et al., 2015). Similarly, DT technologies share key characteristics with emerging technologies, including rapid evolution, unpredictable impacts, and the potential to disrupt established practices. Taking AI as an example, legislation lags behind its actual usage due to the rapid pace of evolution in the field (Taeihagh, 2021). Besides legal uncertainty, ethical questions surrounding privacy, data protection, the legality of automated decision-making under GDPR Article 22 are also making organizations hesitant about when and to what extent to adopt these technologies (Melão and Reis, 2020; Sharif and Ghodoosi, 2022; Todolí-Signes, 2019).

Biased algorithms. The issue of bias in AI presents a paradox, as it has the potential to minimize biases, yet its algorithms can perpetuate or even amplify existing biases inherent in training data, as highlighted by researchers. Köchling et al. (2021) argues that algorithms mirror the existing inequalities found within the dataset, therefore companies must be cautious when integrating algorithmic video analysis into recruitment processes, as biases may arise if the underlying training data is unbalanced (Köchling et al., 2021). Among the reviewed papers, several other articles also warn to be careful when using algorithms for decision-making, citing concerns regarding availability and adequacy of training data (Delecraz et al., 2022; Garg et al., 2022; Soleimani et al., 2021). A solution to address this issue is to ensure that programmers possess a deep understanding and are capable of explaining all decisions made by the algorithms they develop (Delecraz et al., 2022). To achieve this, fostering knowledge-sharing between HR professionals and developers is essential (Soleimani et al., 2021). However, even if such communication channels exist and tools are created for evaluating AI models for explainability (Hofeditz et al., 2022; Kshetri, 2021), the highly technical nature of AI systems makes it extremely

difficult to provide satisfactory explanations for all scenarios (Oberst et al., 2021; Schick and Fischer, 2021).

Technical and cultural challenges. Similarly to DT technologies, the main characteristics of emerging technologies are their rapid evolution and the uncertainty of their effects (Rotolo et al., 2015), which is why companies face risks when investing in these technologies, as it is challenging to predict whether they will achieve success or encounter pitfalls. This is the reason why researchers who approach AI and other DT technologies cautiously highlight their immaturity, therefore low reliability in recruitment and advise HR to exercise patience until the technical aspects become clearer (Horodyski, 2023a). Another concern that was already mentioned in the review is the problem of explainability of AI outcomes. Collaboration between HR professionals and AI developers regarding job requirements may face challenges if HR lacks sufficient understanding of the technical aspects of the tools (Chugunova and Danilov, 2023). This means that HR professionals will need to acquire new knowledge and skills to keep pace with technological advancements and be able to satisfy their business partners' needs (Jacob Fernandes França et al., 2023; Rožman et al., 2022).

Even if all technical limitations are resolved, cultural challenges still remain a pressing issue. Firstly, integrating artificial intelligence requires a fundamental shift in the enterprise's culture and leadership, as it involves embracing new ways of working and decision-making processes (Rožman et al., 2022). Secondly, the implementation of people analytics may create an illusion of control and reductionism, potentially leading to path dependencies and a decline in managerial competence (Giermindl et al., 2022). Finally, the most concerning effect of using these technologies instead of employing HR professionals to perform the same job is the loss of human contact (Costa et al., 2023; Hunkenschroer and Luetge, 2022; Nawaz, 2019b). Effectively addressing these cultural challenges requires a careful balance between leveraging technological advancements and maintaining human-centric skills.

Candidates' perceptions. Regardless of the extent to which a DT technology can transform personnel selection, it is essential to recognize that candidates may choose to self-select out of the process due to their assumptions or perceptions about the technology being used. One of these perceptions is regarding the concealment of AI usage in selection processes. If a candidate is not informed in advance that their application will be evaluated by a machine, it can easily lead to complete loss of trust (Köchling et al., 2023), and might even deter applicants from ever applying again to the hiring organization. Applicant's trust in the hiring process can be further affected by viewing AI-powered interviews as less personal and even unsettling (Fritts and Cabrera, 2021; Nikolaou, 2021; Yadav et al., 2023). In addition, they may perceive AI judgment as lacking the nuanced understanding typical of human judgment, which contributes to their skepticism about the fairness and accuracy of data-driven decisions (Horodyski, 2023a). Some applicants also hold the perception that AI-driven hiring processes are inferior to those managed by humans (Lacroux and Martin-Lacroux, 2022; Nikolaou, 2021; Schick and Fischer, 2021), particularly regarding privacy and ethical considerations (Bedemariam and

Wessel, 2023; Will et al., 2023). Addressing these perceptions are essential for building trust and fostering a positive candidate experience in the recruitment process.

Motivations for employing DT technologies in the selection process

Despite the challenges discussed in the previous section, there are compelling motivations driving organizations to adopt DT technologies in the selection process. The following section explores the key benefits and opportunities that incentivize organizations to embrace DT technologies. The following three main themes emerged after carefully reviewing the existing literature: increased productivity and efficiency, elimination of bias, enhanced employer branding and candidate experience.

Increased productivity and efficiency. One of the greatest advantages of digital tools over humans is their ability to process large amounts of data at high speeds (Hofeditz et al., 2022). In today's competitive market, most companies aim to maximize profits while minimizing costs. Although the initial investment in digital technologies may be high (Chugunova and Danilov, 2023; Pan et al., 2022), in the long run, these tools align quite well with organizations' goals of achieving productivity and efficiency, and can even lead to cost saving (Chakraborty et al., 2020; Geetha and Bhanu, 2018; Rezzani et al., 2020; Wang et al., 2021). This is typically achieved by automating time-consuming, repetitive manual tasks (Conte and Siano, 2023; Horodyski, 2023b; Melão and Reis, 2020; Turcu and Turcu, 2021) and streamlining processes (Gonzalez et al., 2022; Yarger et al., 2019).

Besides saving time and effort in sourcing, screening, and evaluating candidates, DT technologies enable organizations to make data-driven decisions through HR analytics (Kong and Ding, 2024; Meena and Parimalarani, 2019; Ore and Sposato, 2022; Yadav et al., 2023), predict job performance and cultural fit more accurately (Shet and Nair, 2023; Stanley and Aggarwal, 2019), resulting in better hiring decisions (Giermindl et al., 2022). Moreover, the productivity of recruiters can be increased (Sithambaram and Tajudeen, 2023; Yadav et al., 2023) by freeing up HR professionals from repetitive administrative tasks allowing them to focus on strategic and human-centric activities (Horodyski, 2023b; Islam et al., 2022; Oberst et al., 2021; Pandya and Al Janahi, 2021). While saving time and effort through automation aligns with the efficiency improvements characteristic of Digitalized Practices, the ability to make data-driven decisions and fundamentally shift the role of HR professionals represents the hallmark of Digitally Transformed Practices.

Elimination of bias. Another argument for using DT technologies in the selection process lies in humans' inability to completely overcome their biases when making decisions. Artificial intelligence however can assist in eliminating human bias, both conscious and unconscious, resulting in fairer selection outcomes (Hofeditz et al., 2022; Kappen and Naber, 2021; Sithambaram and Tajudeen, 2023; Yam and Skorborg, 2021). This bias-free operation of AI also increases objectivity (Allal-Chérif et al., 2021; Horodyski, 2023b; Kaushik et al., 2023) and consistency (Hunkenschroer and Luetge, 2022; Kim and Heo, 2022; Stander et al., 2022), since all candidates are assessed using the same standards and

criteria. Therefore more reliable and standardized hiring decisions can increase the fairness and transparency of personnel selection (Giermindl et al., 2022; Tian et al., 2023).

Enhanced employer branding and candidate experience. Providing timely, data-based, objective explanations for why an individual is hired or rejected for a job can also enhance candidate experience (Conte and Siano, 2023). Even if a detailed explanation is not given, chatbots and other automations can significantly reduce the time-to-hire measure by accelerating communication (Gethe, 2022; Sithambaram and Tajudeen, 2023), which is not only a key performance indicator for most recruiters, but can also have a great effect on candidates' perception of the hiring organization (Stachová et al., 2021). Furthermore, AI-powered chatbots can provide personalized, immersive and real-time experiences (Pillai and Sivathanu, 2020), while gamification of selection tools can lead to a better candidate experience from an enjoyment and interactivity aspect, resulting in a positive perception of the company (Mahasumran et al., 2021; Nikolaou, 2021; Wang et al., 2021). Additionally, relieving recruiters of repetitive administrative duties, empowers them to engage with candidates on a deeper level and enhance the overall candidate experience (Oberst et al., 2021; Raß-Kettler and Lehnervp, 2019). As for the employer branding aspect, digital technologies like social media, chatbots and various AI tools enhance job applicants' awareness and interest in the employer brand (Abdul et al., 2020; Allal-Chérif et al., 2021; Horodyski, 2023a; Nguyen and Park, 2022). As an example, AR and VR technologies can support employer branding by making the company more attractive to potential employees through providing opportunities to attend virtual tours at the hiring company (Zhao et al., 2019). While Digitalized Practices, such as automations and chatbots reducing time-to-hire, primarily focus on efficiency, Digitally Transformed Practices, like AI-powered personalization, gamification, and immersive technologies such as AR and VR, fundamentally change and enhance candidate experience and employer branding by creating interactive, engaging, and innovative hiring processes.

To provide a comprehensive overview of the key insights from this review, Figure 4 summarizes the main findings, illustrating the relationship between the stages and modes of the selection process, the most frequently discussed motivations and challenges, and the categorization of the technologies of digital transformation into Digital Technologies and AI Enhancements. This summary highlights not only the diverse technological landscape of personnel selection but also how these elements interact to shape the ongoing digital transformation of hiring practices.

Discussion

The findings of this review contribute to and build upon prior research on digital transformation in HRM, including systematic reviews such as Coron (2022) on HR quantification, Langer and Landers (2021) on AI-driven decision-making at work, and others examining AI ethics (Hunkenschroer and Luetge, 2022), tactical AI applications in HRM (Votto et al., 2021), machine learning in HRM (Garg et al., 2022), and AI-HR integration frameworks (Kaushal et al., 2023). However, this study differentiates itself by focusing specifically on personnel selection, a domain often overshadowed in broader HRM

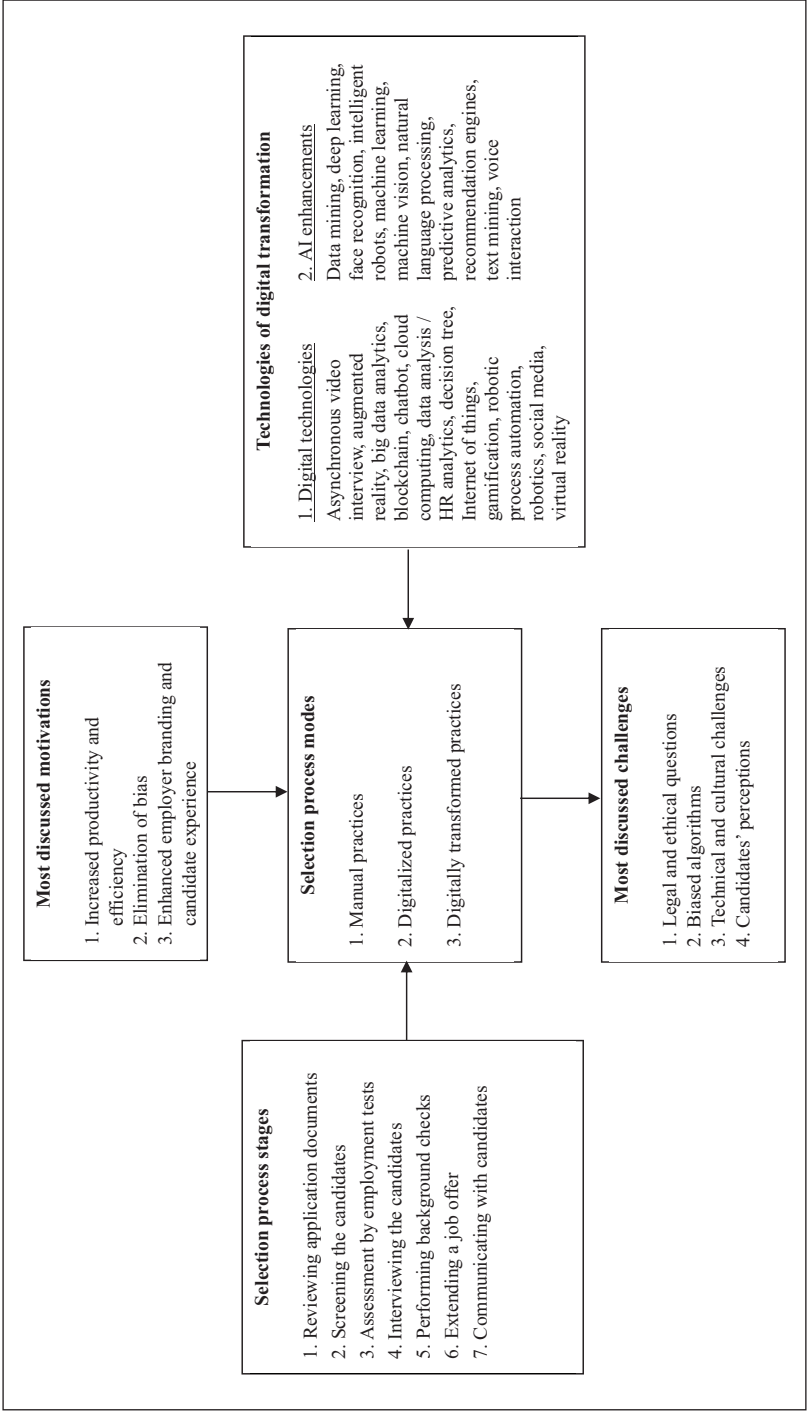


Figure 4. Framework of findings.
Source: Own compilation.

reviews. This study, unlike prior research, introduces a structured categorization distinguishing between Digitalized and Digitally Transformed Practices, providing a more granular understanding of how AI and automation are shaping personnel selection beyond theoretical discussions of HR digitalization.

A key finding of this review is the disciplinary divide in research on the digital transformation of personnel selection. While this topic is inherently relevant to Human Resource Management (HRM), only 12 of the reviewed papers appeared in HRM journals, whereas one-third were published in Information Systems (IS) journals. This suggests that much of the academic discourse on digital hiring technologies is happening outside traditional HRM research. IS journals primarily focus on technological development, algorithmic optimization, and system efficiency, often relying on simulations and technical case studies, whereas HRM journals emphasize ethical concerns, fairness, candidate experience, and legal implications, yet engage less with the practical adoption and effectiveness of these technologies.

This fragmentation contributes to key gaps in the literature, as certain critical aspects of personnel selection remain underexplored. For example, pay negotiations and the validity of AI-based selection tools receive little attention, despite their importance in hiring decisions. This may stem from the strong IS focus on system optimization rather than HR-specific validation studies, leading to more research on theoretical models and technical performance than on real-world hiring outcomes. Future studies should explore how organizations actually implement AI-driven selection tools, assess their prognostic validity, and examine HR practitioners' perceptions and challenges in adoption. By bridging the gap between IS and HRM research, scholars can develop a more holistic understanding of how DT technologies are transforming personnel selection beyond just automation and optimization.

One of the main aims of this review was to uncover the most widely discussed challenges and motivations surrounding the adoption of these technologies. While these topics have been explored in previous HRM research, to date no systematic review has comprehensively examined the advantages and barriers associated with the adoption of digital technologies in personnel selection. This study builds on and refines existing discussions by identifying dominant themes in the literature and situating them within the latest technological advancements in hiring.

A review of 60 years of research on the relationship between technology and HRM found that organizations primarily adopt digital HR tools to streamline administrative processes, improve workforce planning, and enhance decision-making (Kim et al., 2021). This review confirms and extends these findings by showing that increased productivity and efficiency remain key drivers of adoption, particularly in the context of AI-enhanced personnel selection tools. Additionally, Kim et al. (2021) emphasized the role of user perceptions in shaping the success of digital HR adoption. This review adds to this perspective by demonstrating how candidate skepticism toward AI-driven selection processes and HR professionals' adaptation challenges continue to act as significant barriers to adoption in personnel selection. Similarly, in their literature review about HRM 4.0, da Silva et al. (2022) highlighted the broader need for workforce upskilling as a prerequisite for successful HR digitalization. This review contributes to this discussion by specifying that within personnel selection, HR professionals themselves require targeted training to

effectively implement digital tools and collaborate with IT specialists. Finally, Stone et al. (2015) argued that while e-HR systems improve efficiency, they may also create barriers for individuals with lower digital literacy. This review provides additional evidence for these concerns by identifying cultural, technical, and ethical challenges—particularly candidate perceptions of fairness—as central issues in the adoption of digital hiring technologies. By refining these prior findings and applying them to the latest advancements in AI-driven hiring, this review provides a more nuanced understanding of the opportunities and challenges in the digital transformation of personnel selection.

Furthermore, this review also identifies several key patterns and contradictions in the literature. While AI is frequently promoted as a tool to increase objectivity and efficiency in hiring, empirical findings on its actual impact remain inconclusive. Some studies provide evidence that AI-driven selection tools can reduce human bias by anonymizing applicant data and applying standardized decision rules (Hofeditz et al., 2022). However, other research indicates that AI may instead reinforce existing inequalities, as biased training data can replicate or even amplify discriminatory patterns (Köchling et al., 2021). Adding to this complexity, research shows that HR professionals often exhibit a tendency to perceive others as more susceptible to bias than themselves, suggesting that awareness of one's own bias may be limited even among trained personnel (Thomas and Reimann, 2023). This contradiction underscores the importance of dataset quality and algorithm transparency, suggesting that AI's role in personnel selection cannot be evaluated purely in technical terms but must also consider organizational and ethical factors. Most studies in this area rely on conceptual arguments or small-scale experimental designs, rather than large-scale empirical validation of AI's ability to reduce bias in real-world hiring contexts.

A recurring limitation, related to the barriers of adoption, in the literature is the heavy reliance on a single case—Amazon's AI hiring bias—as the primary example of algorithmic discrimination. However, this focus may stem from the broader issue that most organizations do not publicly disclose failures or biases in their AI hiring systems, making it difficult for researchers to analyze how these technologies function in real-world selection processes. The lack of transparency means that bias-related challenges are primarily examined through isolated case studies or theoretical critiques rather than large-scale empirical investigations. Expanding empirical research through direct access to hiring algorithms, company policies, and HR practitioners' perspectives is essential to move beyond hypothetical discussions of bias and develop a more comprehensive understanding of AI's role in hiring. Relatedly, this lack of access and transparency extends beyond bias concerns to the general use of digital hiring technologies in practice. While the literature extensively discusses AI-driven assessment tools, ATS, chatbots, and predictive analytics, around 70% of the reviewed papers rely more on theoretical assumptions than on empirical validation, making it difficult to assess how prevalent these technologies truly are in organizations. Most studies focus on simulations, conceptual frameworks, or single-use cases, with limited industry-wide data on how digital hiring tools are implemented at scale and what long-term effects they have on hiring decisions, job performance, or turnover rates. Future research should prioritize collecting empirical data from organizations to better understand how these technologies are actually adopted, evaluated, and adjusted over time.

As a recent study by Brändle et al. (2023) points out, contextual factors also appear to influence the adoption and perception of digital hiring technologies. While some evidence suggests that large multinational firms integrate AI to enhance scalability and efficiency, smaller firms often face barriers related to cost, technical expertise, and resistance to change (Abdul et al., 2020; Horodyski, 2023b; Turcu and Turcu, 2021). Additionally, sectoral differences may play a role in shaping adoption trends—for instance, studies on tourism and retail highlight AI’s potential to improve job-candidate fit, while research on finance and healthcare tends to focus more on concerns related to algorithmic bias, fairness, and regulatory compliance (Almansoori et al., 2021; Johnson et al., 2021; Nawaz, 2019b). Additionally, the geographic distribution of AI adoption also reflects certain trends, though findings remain limited by the scope of available studies. Research from North America and Europe tends to emphasize fairness, transparency, and legal compliance, aligning with strong regulatory oversight and concerns about bias mitigation (Charlwood and Guenole, 2022; Conte and Siano, 2023; Köchling et al., 2021). Meanwhile, studies from Asia and the Middle East often frame AI adoption in terms of efficiency, cost reduction, and employer branding, though more research is needed to determine whether these priorities differ significantly across regions (Batool et al., 2023; Pandya and Al Janahi, 2021). However, given the limited number of studies in this review available for certain industries and regions, these patterns should be interpreted with caution, and future research should aim to validate these trends with broader empirical evidence.

By synthesizing these insights, this review contributes to both theory and practice by offering a structured framework for understanding digital transformation in personnel selection, identifying critical gaps in empirical validation, ethical considerations, and industry-specific adoption challenges. These findings underscore the need for future research that moves beyond AI-centric discussions to consider the broader landscape of digital hiring technologies and their long-term implications for workforce decision-making.

Limitations

This study has certain methodological limitations that should be acknowledged. One primary limitation is related to the choice of keywords used in the search string and the reliance on a single database (Scopus). While the search string was designed to capture a broad range of digital transformation technologies in personnel selection—including terms such as “fourth industrial revolution” and “talent management”—it did not explicitly include certain technologies such as algorithmic decision-making (ADM), virtual reality (VR), or chatbots. Instead, artificial intelligence (AI) and machine learning (ML) were directly incorporated into the search terms. This decision reflects the current discourse in HR digitalization, where AI is frequently highlighted as a key driver of transformation. However, it also means that the prominence of AI in the findings may, to some extent, be a reflection of the search criteria rather than an entirely organic trend in the literature. Researchers using different keyword sets—such as focusing on ADM rather than AI—may arrive at different conclusions regarding the most impactful technologies in personnel selection. Similarly, while efforts were made to optimize the search

string for relevance, the choice to use “selection process” rather than the broader term “selection,” and HRM-related terms instead of “personnel,” may have resulted in the omission of studies using alternative terminology. Future research could explore how different keyword combinations impact the scope and findings of similar reviews. Additionally, the reliance on Scopus as the sole database may have resulted in the omission of relevant studies indexed in Web of Science or other repositories, potentially limiting the diversity of sources included.

Furthermore, this study specifically concentrated on selection and recruitment processes within HRM. While this scope aligns with the research objectives, it may have resulted in the exclusion of broader HRM studies that discuss selection in conjunction with other HR functions (e.g. performance management or learning and development). Consequently, some insights into the interplay between selection and other HRM processes may be underrepresented. Future research could benefit from adopting a more expansive approach, incorporating a wider array of HR functions to provide a holistic view of digital transformation in HRM.

By acknowledging these limitations, this study aims to provide transparency regarding the potential biases in its findings and encourage further research that explores digital transformation in personnel selection from a broader technological and methodological perspective.

Conclusion

This systematic review analyzes the transformative role of digital transformation technologies in personnel selection. Building on the broader framework of analog, digitalized, and digitally transformed approaches, this study provides a structured understanding of the evolution of technology in personnel selection by distinguishing between Manual Practices, Digitalized Practices, and Digitally Transformed Practices. It further categorizes these technologies into Digital Technologies and AI Enhancements and maps their applications across different stages of the process. The findings highlight both the challenges, including legal and ethical concerns, algorithmic biases, technical and cultural barriers, and candidate perceptions, and the benefits, such as eased efficiency, reduced bias, enhanced employer branding, and improved candidate experience associated with these technologies.

This study bridges theoretical and practical perspectives, providing HR practitioners with insights on integrating DT technologies while contributing to academic discourse by identifying critical gaps in HR digitalization research. Future studies should focus on the real-world implementation and effectiveness of these technologies, examining their long-term influence on HR processes, hiring outcomes, and organizational performance, as well as the broader ethical and strategic implications of their adoption in personnel selection.

Funding

The author received no financial support for the research, authorship, and/or publication of this article.

Data availability statement

All data generated or analyzed during this study are included in this published article and its supplementary information files.

Ethical approval and informed consent statements

There are no human participants in this article and informed consent is not required.

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Supplemental material

Supplemental material for this article is available online.

References

- Abdul C, Wang W and Li Y (2020) The impact of technology on recruitment process. *Issues in Information Systems* 21(4): 9–17.
- Albaroudi E, Mansouri T and Alameer A (2024) A comprehensive review of AI techniques for addressing algorithmic bias in job hiring. *AI* 5(1): 383–404.
- Allal-Chérif O, Yela Aránega A and Castaño Sánchez R (2021) Intelligent recruitment: How to identify, select, and retain talents from around the world using artificial intelligence. *Technological Forecasting and Social Change* 169: 120822.
- Almansoori AHMA, Othman MF and Siam MRA (2021) Moderating interact of artificial intelligence use in the influences of recruitment, selection, and staffing on the organizational performance in the UAE Manufacturing Industry. *Academy of Entrepreneurship Journal* 27(2S): 1–14.
- Anand A, Bowen M, Spivack AJ, et al. (2023) The role of ethics in business-to-business marketing: An exploratory review and research agenda. *Industrial Marketing Management* 115: 421–438.
- Azmy A (2018) Recruitment strategy to hire the best people for organization. *Journal of Management and Leadership* 1(2): 1–16.
- Batool M, Rashid M, Khan ZI, et al. (2023) Asian perspective of artificial intelligence in hiring: A systematic review. *AI-Qanṭara* 9(3): 219–244.
- Bedemariam R and Wessel JL (2023) The roles of outcome and race on applicant reactions to AI systems. *Computers in Human Behavior* 148: 107869.
- Black JS and van Esch P (2021) AI-enabled recruiting in the war for talent. *Business Horizons* 64(4): 513–524.
- Braña FJ (2019) A fourth industrial revolution? Digital transformation, labor and work organization: A view from Spain. *Journal of Industrial and Business Economics* 46(3): 415–430.
- Brändle T, Grunau P, Haylock M, et al. (2023) Heterogeneity in firms' recruitment practices: New evidence from representative employer data. *Journal of Human Resource Management* 37(2): 107–136.
- Chakraborty S, Giri A, Aich A, et al. (2020) Evaluating influence of artificial intelligence on human resource management using PLS-SEM (Partial least squares-structural equation modeling). *International Journal of Scientific and Technology Research* 9(3): 5876–5880.
- Charlwood A and Guenole N (2022) Can HR adapt to the paradoxes of artificial intelligence? *Human Resource Management Journal* 32(4): 729–742.

- Chen Z (2023) Collaboration among recruiters and artificial intelligence: Removing human prejudices in employment. *Cognition Technology & Work* 25(1): 135–149.
- Chilunjika A, Intauno K and Chilunjika SR (2022) Artificial intelligence and public sector human resource management in South Africa: Opportunities, challenges and prospects. *Journal of Human Resource Management* 20(0): a1972.
- Chugunova M and Danilov A (2023) Use of digital technologies for HR management in Germany: Survey evidence. *CESifo Economic Studies* 69(2): 69–90.
- Conte F and Siano A (2023) Data-driven human resource and data-driven talent management in internal and recruitment communication strategies: An empirical survey on Italian firms and insights for European context. *Corporate Communications An International Journal* 28(4): 618–637.
- Coron C (2022) Quantifying human resource management: A literature review. *Personnel Review* 51(4): 1386–1409.
- Costa RLD, Costa B, Martinho F, et al. (2023) Artificial intelligence contribution to recruitment and selection. *International Journal of Management Practice* 16(4): 434–453.
- da Silva LBP, Soltovski R, Pontes J, et al. (2022) Human resources management 4.0: Literature review and trends. *Computers & Industrial Engineering* 168: 108111.
- Delecraz S, Eltarr L, Becuwe M, et al. (2022) Responsible artificial intelligence in human resources technology: an innovative inclusive and fair by design matching algorithm for job recruitment purposes. *Journal of Responsible Technology* 11: 100041.
- DeSanctis G (1986) Human resource information systems: A current assessment. *MIS Quarterly* 10(1): 15–27.
- Deters J (2022) *Analytics and Intuition in the Process of Selecting Talent: A Holistic Approach*. Berlin, Boston: De Gruyter.
- DiRomualdo A, El-Khoury D and Girimonte F (2018) HR in the digital age: How digital technology will change HR's organization structure, processes and roles. *Strategic HR Review* 17(5): 234–242.
- Fisher PA, Risavy SD, Robie C, et al. (2021) Selection myths. *Journal of Personnel Psychology* 20(2): 51–60.
- Folger N, Brosi P, Stumpf-Wollersheim J, et al. (2022) Applicant reactions to digital selection methods: A signaling perspective on innovativeness and procedural justice. *Journal of Business and Psychology* 37: 735–757.
- FraiJ J and László V (2021) A literature review: Artificial intelligence impact on the recruitment process. *International Journal of Engineering and Management Sciences* 6(1): 108–119.
- Fritts M and Cabrera F (2021) AI recruitment algorithms and the dehumanization problem. *Ethics and Information Technology* 23: 791–801.
- Gaikwad S and Vaishnav V (2022) Stages in Recruitment and its Importance: A Study. *International Journal of Engineering Research and Technology* 11(03): 128–131.
- Garg S, Sinha S, Kar AK, et al. (2022) A review of machine learning applications in human resource management. *International Journal of Productivity and Performance Management* 71(5): 1590–1610.
- Geetha R and Bhanu SRD (2018) Recruitment through artificial intelligence: a conceptual study. *International Journal of Mechanical Engineering and Technology* 9(7): 63–70.
- Gethe RK (2022) Extrapolation of talent acquisition in AI aided professional environment. *International Journal of Business Innovation and Research* 27(4): 462–479.
- Giermendl LM, Strich F, Christ O, et al. (2022) The dark sides of people analytics: Reviewing the perils for organisations and employees. *European Journal of Information Systems* 31(3): 410–435.
- Gonzalez MF, Liu W, Shirase L, et al. (2022) Allying with AI? Reactions toward human-based, AI/ML-based, and augmented hiring processes. *Computers in Human Behavior* 130: 107179.

- Gusdorf ML (2008) *Recruitment and Selection: Hiring the Right Person. SHRM Staffing Management Instructor's Manual*. Alexandria, VA: Society for Human Resource Management.
- Harari YN (2017) *Homo Deus: A Brief History of Tomorrow*. London: Vintage Penguin Random House.
- Hofeditz L, Clausen S, Rieß A, et al. (2022) Applying XAI to an AI-based system for candidate management to mitigate bias and discrimination in hiring. *Electronic Markets* 32(4): 2207–2233.
- Horodyski P (2023a) Applicants' perception of artificial intelligence in the recruitment process. *Computers in Human Behavior Reports* 11: 100303.
- Horodyski P (2023b) Recruiter's perception of artificial intelligence (AI)-based tools in recruitment. *Computers in Human Behavior Reports* 10: 100298.
- Hunkenschroer AL and Luetge C (2022) Ethics of AI-enabled recruiting and selection: A review and research agenda. *Journal of Business Ethics* 178(4): 977–1007.
- Indarapu SRK, Vodithala S, Kumar N, et al. (2023) Exploring human resource management intelligence practices using machine learning models. *Journal of High Technology Management Research* 34(2): 100466.
- Islam M, Mamun AA, Afrin S, et al. (2022) Technology adoption and human resource management practices: The use of artificial intelligence for recruitment in Bangladesh. *South Asian Journal of Human Resources Management* 9(2): 324–349.
- Jacob Fernandes França T, São Mamede H, Pereira Barroso JM, et al. (2023) Artificial intelligence applied to potential assessment and talent identification in an organisational context. *Heliyon* 9(4): e14694.
- Johnson RD, Lukaszewski KM and Stone DL (2016) The evolution of the field of human resource information systems: Co-evolution of technology and HR processes. *Communications of the Association for Information Systems* 38(1): 533–553.
- Johnson RD, Stone DL and Lukaszewski KM (2021) The benefits of eHRM and AI for talent acquisition. *Journal of Tourism Futures* 7(1): 40–52.
- Kappen M and Naber M (2021) Objective and bias-free measures of candidate motivation during job applications. *Scientific Reports* 11(1): 21254.
- Kaushal N, Kaurav RPS, Sivathanu B, et al. (2023) Artificial intelligence and HRM: identifying future research Agenda using systematic literature review and bibliometric analysis. *Management Review Quarterly* 73(2): 455–493.
- Kaushik P, Miglani S, Shandilya I, et al. (2023) HR functions productivity boost by using AI. *International Journal on Recent and Innovation Trends in Computing and Communication* 11(8s): 701–713.
- Kim JY and Heo W (2022) Artificial intelligence video interviewing for employment: Perspectives from applicants, companies, developer and academicians. *Information Technology and People* 35(3): 861–878.
- Kim S, Wang Y and Boon C (2021) Sixty years of research on technology and human resource management: Looking back and looking forward. *Human Resource Management* 60(1): 229–247.
- Köchling A, Riazzy S, Wehner MC, et al. (2021) Highly accurate, but still discriminatory: A fairness evaluation of algorithmic video analysis in the recruitment context. *Business & Information Systems Engineering* 63: 39–54.
- Köchling A, Wehner MC and Warkocz J (2023) Can I show my skills? Affective responses to artificial intelligence in the recruitment process. *Review of Managerial Science* 17(6): 2109–2138.
- Koivunen S, Ala-Luopa S, Olsson T, et al. (2022) The March Of chatbots into recruitment: Recruiters' experiences, expectations, and design opportunities. *Computer Supported Cooperative Work (CSCW)* 31(3): 487–516.

- Kong Y and Ding H (2024) Tools, potential, and pitfalls of social media screening: Social profiling in the era of AI-assisted recruiting. *Journal of Business and Technical Communication* 38(1): 33–65.
- Kroll E, Veit S and Ziegler M (2021) The discriminatory potential of modern recruitment trends-A mixed-method study from Germany. *Frontiers in Psychology* 12: 634376.
- Kshetri N (2021) Evolving uses of artificial intelligence in human resource management in emerging economies in the global South: Some preliminary evidence. *Management Research Review* 44(7): 970–990.
- Kumar KD, Senthil P and Kumar DM (2020) Educational certificate verification system using blockchain. *International Journal of Scientific and Technology Research* 9(3): 82–85.
- Lacroux A and Martin-Lacroux C (2022) Should I trust the Artificial Intelligence to recruit? Recruiters' perceptions and behavior when faced with algorithm-based recommendation systems during resume screening. *Frontiers in Psychology* 13: 895997.
- Langer M and Landers RN (2021) The future of artificial intelligence at work: A review on effects of decision automation and augmentation on workers targeted by algorithms and third-party observers. *Computers in Human Behavior* 123: 106878.
- Liberali A, Altman DG, Tetzlaff J, et al. (2009) The PRISMA statement for reporting systematic reviews and meta-analyses of studies that evaluate health care interventions: Explanation and elaboration. *Annals of Internal Medicine* 151(4): W65–W94.
- Lievens F, Chapman D, et al. (2010) Recruitment and selection. In: Wilkinson A, Bacon N and Redman T (eds) *The Sage Handbook of Human Resource Management*. London: Sage Publications, pp.135–154.
- Mahasumran W, Thepchit S, Attavinijtrakarn P, et al. (2021) The factors of digital human resource management in Thai automotive parts manufacturers. *Journal of Management Information and Decision Sciences* 24(S1): 1–17.
- Meena R and Parimalarani G (2019) Human capital analytics: A game changer for HR professionals. *International Journal of Recent Technology and Engineering* 8: 3963–3965.
- Melão N and Reis J (2020) Selecting talent using social networks: A mixed-methods study. *Heliyon* 6(4): e03723.
- Mirowska A and Mesnet L (2022) Preferring the devil you know: Potential applicant reactions to artificial intelligence evaluation of interviews. *Human Resource Management Journal* 32(2): 364–383.
- Móricz P, Marciniak R and Baksa M (2022) Excellence and renewal: Digital transformation patterns in the Hungarian business services sector. *Vezetéstudomány/Budapest Management Review* 53(5): 32–44.
- Nambisan S, Lyytinen K, Majchrzak A, et al. (2017) Digital innovation management: Reinventing innovation management research in a digital world. *MIS Quarterly* 41(1): 223–238.
- Nawaz N (2019a) Artificial intelligence is transforming recruitment effectiveness in CMMI level companies. *International Journal of Advanced Trends in Computer Science and Engineering* 8(6): 3017–3021.
- Nawaz N (2019b) Artificial intelligence interchange human intervention in the recruitment process in Indian software industry. *International Journal of Advanced Trends in Computer Science and Engineering* 8(4): 1433–1441.
- Nawaz N (2020) Artificial intelligence applications for face recognition in recruitment process. *Journal of Management Information and Decision Sciences* 23: 499–509.
- Newell S (2005) Recruitment and selection. In: Bach S (ed.) *Managing Human Resources: Personnel Management in Transition*, 4th edn. Malden: Blackwell, pp.115–147.
- Nguyen LA and Park M (2022) Artificial intelligence in staffing. *Vision* 09722629221096803.

- Niehueser W and Boak G (2020) Introducing artificial intelligence into a human resources function. *Industrial and Commercial Training* 52(2): 121–130.
- Nikolaou I (2021) What is the role of technology in recruitment and selection? *Spanish Journal of Psychology* 24: e2.
- O'Leary DE (2023) Digitization, digitalization, and digital transformation in accounting, electronic commerce, and supply chains. *Intelligent Systems in Accounting Finance & Management* 30(2): 101–110.
- Oberst U, De Quintana M, Del Cerro S, et al. (2021) Recruiters prefer expert recommendations over digital hiring algorithm: A choice-based conjoint study in a pre-employment screening scenario. *Management Research Review* 44(4): 625–641.
- Ore O and Sposato M (2022) Opportunities and risks of artificial intelligence in recruitment and selection. *International Journal of Organizational Analysis* 30(6): 1771–1782.
- Page MJ, McKenzie JE, Bossuyt PM, et al. (2021) The PRISMA 2020 statement: An updated guideline for reporting systematic reviews. *British Medical Journal* 372(71): 1–9.
- Pandya B and Al Janahi MM (2021) The intervention of artificial intelligence in the recruitment function in UAE's hospitality industry. *Transnational Marketing Journal* 9(1): 89–105.
- Pan Y, Froese F, Liu N, et al. (2022) The adoption of artificial intelligence in employee recruitment: The influence of contextual factors. *International Journal of Human Resource Management* 33(6): 1125–1147.
- Paul J and Criado AR (2020) The art of writing literature review: What do we know and what do we need to know? *International Business Review* 29(4): 101717.
- Pillai R and Sivathanu B (2020) Adoption of artificial intelligence (AI) for talent acquisition in IT/ITeS organizations. *Benchmarking An International Journal* 27(9): 2599–2629.
- Pillai R, Yadav S, Sivathanu B, et al. (2022) Use of 4.0 (I4.0) technology in HRM: A pathway toward SHRM 4.0 and HR performance. *Foresight* 24(6): 708–727.
- Potočník K, Anderson NR, Born M, et al. (2021) Paving the way for research in recruitment and selection: recent developments, challenges and future opportunities. *European Journal of Work and Organizational Psychology* 30(2): 159–174.
- Raß-Kettler K and Lehnervp B (2019) Recruitment in the times of machine learning. *Management Systems in Production Engineering* 27(2): 105–109.
- Rezzani A, Caputo A and Cortese CG (2020) An analysis of the literature about the application of artificial intelligence to the recruitment and personnel selection. *Bollettino di Psicologia Applicata* 68(289): 25–33.
- Roemmich K, Rosenberg T, Fan S, et al. (2023) Values in emotion artificial intelligence hiring services: Technosolutions to organizational problems. *Proceedings of the ACM on Human-Computer Interaction* 7(CSCW1): 1–28.
- Rotolo D, Hicks D and Martin BR (2015) What is an emerging technology? *Research Policy* 44(10): 1827–1843.
- Rožman M, Oreški D and Tominc P (2022) Integrating artificial intelligence into a talent management model to increase the work engagement and performance of enterprises. *Frontiers in Psychology* 13: 1014434.
- Salo J (2017) Social media research in the industrial marketing field: Review of literature and future research directions. *Industrial Marketing Management* 66: 115–129.
- Schick J and Fischer S (2021) Dear computer on my desk, which candidate fits best? An assessment of candidates' perception of assessment quality when using AI in personnel selection. *Frontiers in Psychology* 12: 739711.
- Sharif MM and Ghodoosi F (2022) The ethics of blockchain in organizations. *Journal of Business Ethics* 178(4): 1009–1025.

- Shet S and Nair B (2023) Quality of hire: Expanding the multi-level fit employee selection using machine learning. *International Journal of Organizational Analysis* 31(6): 2103–2117.
- Sithambaram RA and Tajudeen FP (2023) Impact of artificial intelligence in human resource management: A qualitative study in the Malaysian context. *Asia Pacific Journal of Human Resources* 61(4): 821–844.
- Soleimani M, Intezari A and Pauleen DJ (2021) Mitigating cognitive biases in developing AI-assisted recruitment systems: A knowledge-sharing approach. *International Journal of Knowledge Management* 18(1): 1–18.
- Solek-Borowska C and Wilczewska M (2018) New technologies in the recruitment process. *Economics and Culture* 15(2): 25–33.
- Stachová K, Stacho Z, Cagáňová D, et al. (2021) Progress in the use of tools for the selection of employees at the time of digitizing. *EAI Endorsed Transactions on Scalable Information Systems* 8(33): e6.
- Stander FW, Rothmann S, Popov V, et al. (2022) A framework for digital talent assessment: Guidelines and applications. *Journal of Psychology in Africa* 32(5): 520–525.
- Stanley DS and Aggarwal V (2019) Impact of disruptive technology on human resource management practices. *International Journal of Business Continuity and Risk Management* 9(4): 350–361.
- Stone DL, Deadrick DL, Lukaszewski KM, et al. (2015) The influence of technology on the future of human resource management. *Human Resource Management Review* 25(2): 216–231.
- Strohmeier S (2020) Digital human resource management: A conceptual clarification. *Journal of Human Resource Management* 34(3): 345–365.
- Taeiagh A (2021) Governance of artificial intelligence. *Policy and Society* 40(2): 137–157.
- Tambe P, Cappelli P and Yakubovich V (2019) Artificial intelligence in human resources management: Challenges and a path forward. *California Management Review* 61(4): 15–42.
- Thomas O and Reimann O (2023) The bias blind spot among HR employees in hiring decisions. *Journal of Human Resource Management* 37(1): 5–22.
- Tian X, Pavur R, Han H, et al. (2023) A machine learning-based human resources recruitment system for business process management: using LSA, BERT and SVM. *Business Process Management Journal* 29(1): 202–222.
- Todoli-Signes A (2019) Algorithms, artificial intelligence and automated decisions concerning workers and the risks of discrimination: The necessary collective governance of data protection. *Transfer European Review of Labour and Research* 25(4): 465–481.
- Turcu CE and Turcu CO (2021) Digital transformation of human resource processes in small and medium sized enterprises using robotic process automation. *International Journal of Advanced Computer Science and Applications* 12(12): 70–75.
- van Esch P and Black JS (2019) Factors that influence new generation candidates to engage with and complete digital, AI-enabled recruiting. *Business Horizons* 62(6): 729–739.
- Verhoef PC, Broekhuizen T, Bart Y, et al. (2021) Digital transformation: A multidisciplinary reflection and research agenda. *Journal of Business Research* 122: 889–901.
- Votto AM, Valecha R, Najafirad P, et al. (2021) Artificial intelligence in tactical human resource management: A systematic literature review. *International Journal of Information Management Data Insights* 1(2): 100047.
- Wang X, Haque MJ, Li W, et al. (2021) AI-enabled E-recruitment services make job searching, application submission, and employee selection more interactive. *Information Resources Management Journal* 34(4): 48–68.
- Will P, Krpan D and Lordan G (2023) People versus machines: Introducing the HIRE framework. *Artificial Intelligence Review* 56(2): 1071–1100.

- Yadav M, Kakkar M and Kaushik P (2023) Harnessing artificial intelligence to empower HR processes and drive enhanced efficiency in the workplace to boost productivity. *International Journal on Recent and Innovation Trends in Computing and Communication* 11(8s): 381–390.
- Yam J and Skorburg JA (2021) From human resources to human rights: Impact assessments for hiring algorithms. *Ethics and Information Technology* 23(4): 611–623.
- Yarger L, Cobb Payton F and Neupane B (2019) Algorithmic equity in the hiring of underrepresented IT job candidates. *Online Information Review* 44(2): 383–395.
- Zhao H, Zhao Q and Ślusarczyk B (2019) Sustainability and digitalization of corporate management based on augmented/virtual reality tools usage: China and other world IT companies' experience. *Sustainability* 11(17): 4717.