Big Data and Predictive Analytics for Strategic Human Resource Management: A Systematic Literature Review

Minwir Al-Shammari[1], Fatema Ahmed Al Bin Ali[2], Mariam Abdulla AlRashidi[1] and Muneera Salem Albuainain[1]

[1]*College of Business Administration, University of Bahrain, Kingdom of Bahrain*
[2]*College of Applied Studies, University of Bahrain, Kingdom of Bahrain*

Abstract: In the digital transformation era, businesses generate vast amounts of data from various sources, leading to big data (BD) and predictive analytics (PA). This data explosion has revolutionized how we approach strategic human resource management (SHRM) and offers practical implications for businesses. With the exponential growth of organizational data in volume, velocity, and diversity, there is a significant opportunity to explore BD and PA methods that provide executives with future-oriented insights into talent dynamics. With its comprehensive and rigorous approach, this study aims to present a concise overview of the main themes and patterns using a systematic literature review (SLR). Numerous studies have been conducted on adopting BD and PA techniques, producing excellent results and offering valuable insights for SHRM experts and future researchers. The search was limited to Scopus-indexed articles written in English and published between 2016 and 2023. After an initial search, approximately 50 articles were identified and screened for relevance using a set of inclusion and exclusion criteria. In the final sample, 21 articles published between 2016 and 2023 met the inclusion criteria. The SLR summary outlines the key findings and limitations. The SLR also assessed the status of existing research on the topic and identified areas for future research, providing a comprehensive understanding of the current state of BD and PA in SHRM and instilling confidence in the thoroughness of the research.

Keywords: Big data, Performance analytics, Systematic literature review, Strategic human resource management

1. INTRODUCTION

n the digital transformation era, businesses generate massive amounts of data from various sources. This data explosion has not only revolutionized big data (BD) and predictive analytics (PA), but it has also fundamentally reshaped our understanding of strategic human resource management (SHRM). The global workforce and the increasing significance of business analytics as a strategic organizational competency drive changes in SHRM practices. SHRM experts must understand that companies increasingly leverage these data-driven insights to steer their strategic SHRM practices and make crucial people management decisions, opening up many opportunities [1].

The application of PA techniques in SHRM domains is not without its challenges. Information and communication technology (ICT) and organizational and cultural barriers can pose significant hurdles for HR to collaborate effectively with analytics teams on human resources projects. Moreover, persistent challenges exist in balancing human judgment and anticipatory analysis and addressing ethical dilemmas involving discrimination and privacy. These is-

sues necessitate careful consideration.

A range of cutting-edge technologies can significantly enhance an organization's daily operations and policies. For instance, using AI in the hiring process can bring several benefits. By reviewing resumes and selecting the best matches based on pre-set criteria, AI can expedite the initial screening of applicants. It can also automate time-consuming tasks like scheduling interviews, sending follow-up emails, and even conducting initial interviews through chatbots. AI can further mitigate bias in the recruitment process by prioritizing qualifications and skills over personal traits. These technological advancements herald a new era of SHRM that can streamline processes, boost efficiency, and aid in identifying the most suitable candidates for the job [2].

Analyzing publishing patterns over the last ten years provides essential information for future research. Examining the development and evolution of scholarly writing enables us to understand the field's advances and identify significant emerging trends and patterns.

E-mail address: malshammari@uob.edu.bh, Fatema.albinali@gmail.com, m.a.alrashidi965@gmai1.com, m.albouainin@gmail.com

This study aims to perform a systematic literature review (SLR), investigate the possible advantages and difficulties in this quickly evolving sector, and pinpoint research trends to offer scholars and professionals insightful information. Understanding the use of PA in strategic workforce efforts helps improve HR practitioners' ability to make decisions. Academics can use this study as a reference to compile current information and pinpoint areas that require more research.

2. RELATED WORKS

Margherita's study carefully examined the literature on HRM analytics [1]. The study examined how cognitive and artificial intelligence advancements could lead to an exponential rise in HR analytics by providing a thorough framework and a research roadmap. Numerous studies have been conducted to assess adoption rates and identify areas requiring additional research as BDA and PA have become more popular. According to Gupta and Mishra [2], AI can lessen bias in the recruiting process by emphasizing qualifications and skills over personal traits. AI can assist in finding the best job prospects, increase productivity, and save time.

Verma et al. [3] examined fifty-six publications as part of a systematic literature review (SLR) in 2021 to explore the background and essential issues of SHRM; the results show gaps to provide a solid multilevel framework for further study. Votto et al. [4] conducted an extensive literature review to ascertain the tactical HRIS (T-HRIS) components discussed in the literature and how each aspect is represented.

Adopting various advanced technologies can help organizations smoothen their daily tasks and enhance their policies and processes. Utilizing AI in the recruiting process can bring several benefits. AI can help streamline the initial screening of candidates by analyzing resumes and identifying top matches based on specific criteria. It can also automate repetitive tasks like scheduling interviews, sending follow-up emails, and even conducting initial interviews through chatbots.

PA's workforce and succession planning applications have been the subject of numerous research. In their assessment of SHRM algorithms, Cheng and Hackett [5] observed that although practitioners were interested in recruiting and compensation, academic research was more concerned with deterministic algorithms for operational optimization than with probabilistic approaches to HR problems. Recent empirical research by Mishra et al. [6] suggests that the impact of HR capabilities and ICT deployment on organizational performance may be mediated by BD and PA diffusion.

Succession planning is one area where predictive approaches are being investigated. Jackson and Dunn-Jensen [7] proposed a four-step procedure for coordinating succession planning with ambidextrous organizations. The process involved using data analytics for testing, realigning plans,

identifying choice traps, and auditing ambidexterity levels. It shows how predictive tools may foster creativity and competency despite being conceptual. According to Hamilton and Sodeman [8], more C-level support, issues with data integration, and ethical considerations are needed to apply BD to address strategic workforce questions.

Suri and Lakhanpal [9] shed light on the transformative role of people analytics in advancing HRM as a discipline and function. Their findings emphasized the enhanced alignment of HR functions, the facilitation of strategic planning integration, the establishment of causal relationships between HRM and business performance, and the bolstering of scientific rigor, consistency, and credibility in the field. Thakur et al. [10] delved into the practical implications of SHRM analytics for organizational performance. Their findings underscored the direct and indirect effects of HRM analytics use and maturity on these aspects, highlighting the potential for improved problem-solving capabilities and overall performance. Cameron et al. [11] highlighted recent research emphasizing more integrative SHRM contexts and concentrated on specific algorithmic applications for HRM functions like workforce planning, learning and development, allocation and scheduling, and recruitment. The study recommends that managers might have to organize HRM project teams with their ICT and data analyst colleagues.

3. METHODOLOGY

An SLR was carried out to capture the dynamic landscape of the BD and PA for SHRM. This study highlights research gaps and provides knowledge of the tactical components of SHRM. The SLR was carried out using the following methodology, as shown in Figure 1. The search approach included several SHRM and BD-related terms, such as "Big data," "Workforce planning," "Predictive analytics," "Succession planning," and "Data quality." The search parameters included all Scopus articles released between 2016 and 2023. Following a preliminary search, about fifty publications were found and subjected to inclusion and exclusion criteria to determine their relevance. Twenty-one papers from 2016 to 2023 published in the final sample satisfied the inclusion requirements.

The criteria for inclusion include the article or book, which should contain "Strategic human resource management" AND "Big data" OR "Workforce planning" AND "Predictive analytics" OR "Succession planning" AND "Predictive analytics". The review was limited to English-language articles accessed through academic websites.

The criteria for exclusion were limited to the entire text, repetition, and publication in a language other than English. Articles or books without "Strategic human resource management" AND "Big data" OR "Workforce planning" AND "Predictive analytics" OR "Succession planning" AND "Predictive analytics" were excluded. The evaluation did not consider whitepapers, case studies, and electronic books written by practitioners; it only looked at peer-reviewed academic literature.
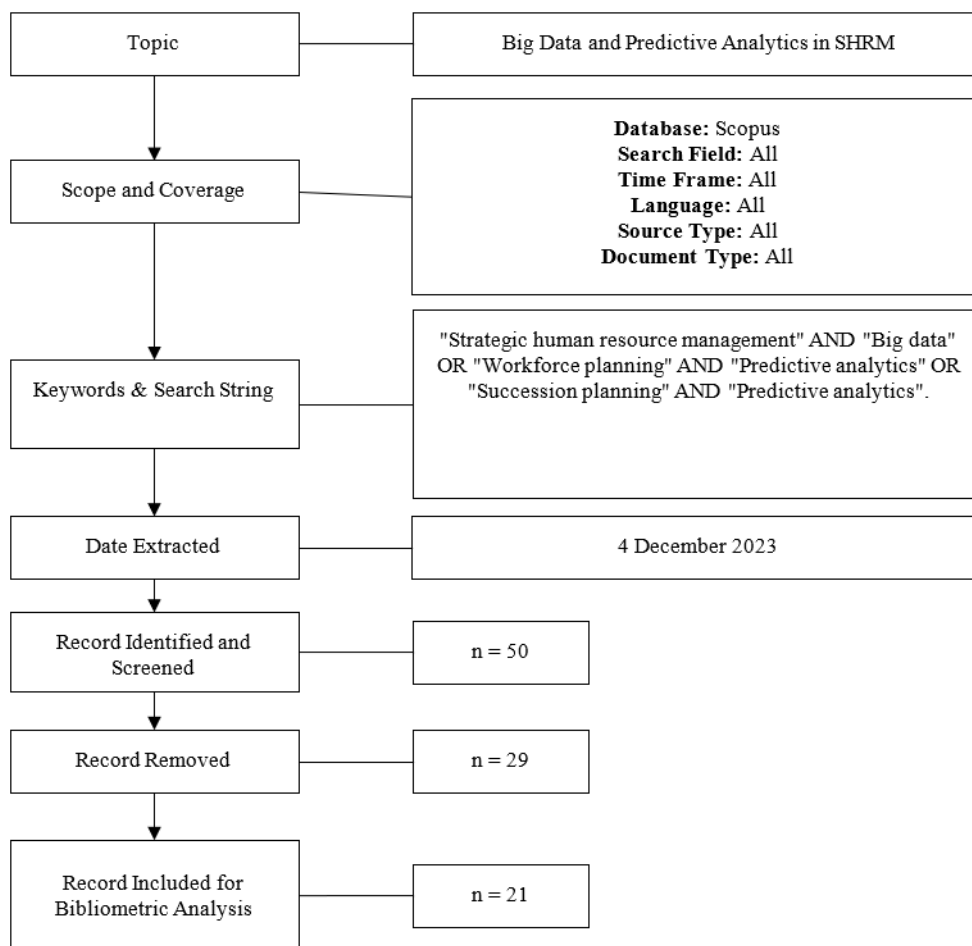
Topic — Big Data and Predictive Analytics in SHRM

Scope and Coverage —
Database: Scopus
Search Field: All
Time Frame: All
Language: All
Source Type: All
Document Type: All

Keywords & Search String — "Strategic human resource management" AND "Big data" OR "Workforce planning" AND "Predictive analytics" OR "Succession planning" AND "Predictive analytics".

Date Extracted — 4 December 2023

Record Identified and Screened — n = 50

Record Removed — n = 29

Record Included for Bibliometric Analysis — n = 21

Figure 1. Flow chart of the SLR search process

4. RESULTS

Numerous studies have examined how these two areas overlap in integrating BD and PA into SHRM, which has grown significantly in recent years. This section briefly summarizes the primary themes and patterns identified in the literature. It mainly concentrates on the essential findings and insights from the theoretical frameworks that serve as the study's foundation.

The results of publication output analyzed by contributing countries are shown in Figure 2. Among the Asian countries, India had the highest number of papers, with 23, highlighting Asia's dominance in researching this field. Several European nations also contributed notable papers, including France (11), the United Kingdom (10), Italy (7), and Spain (5). As a result, engagement is evident across both developing and developed world regions. A double-digit number of countries/regions participate, including the United States.

Shaded areas on the map indicate the frequency of research papers produced by each country. In terms of research output, Asia is the most dominant continent. India has the most significant presence, followed by China, Malaysia, and South Korea. European countries, including France, the United Kingdom, Italy, and Spain, contribute substantially to research. The United States and Canada, representing North America, account for a large share of the publishing count. Although some nations have published more than others, the spread of these issues highlights their global relevance with insights that have emerged from indeed international communities of scholars. It is evident from the visualization of the world map that the quantitative findings are supported by widespread engagement in developed and developing nations alike.

The SLR's analysis revealed essential problems with these techniques, as well as opportunities and challenges. The SLR summary, shown in Table I, outlines the primary conclusions and restrictions. The SLR's objectives were to assess the state of the field's current research and pinpoint areas that require more investigation.
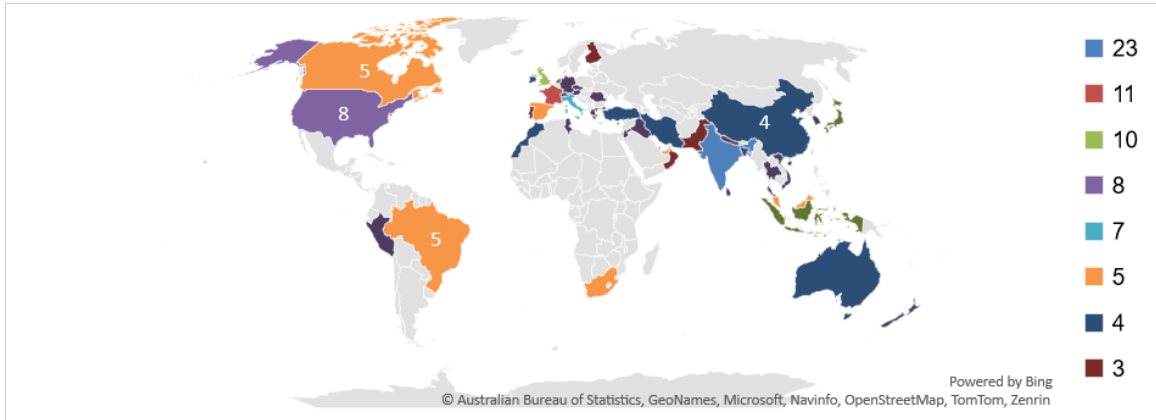
Figure 2. Global distribution of research output by country

TABLE I. Systematic literature review summary

No.	Author	Findings: similarities and differences	Lmitations
1	Alessandro Margherita (2020) [1]	One hundred six critical concepts associated with HR analytics were identified and classified into three main categories (enablers, applications, value) and six sub-categories. The study provided an integrative definition and comprehensive inventory of HR analytics ideas and research topics.	Literature was limited to English, which could exclude some perspectives. Journal quality was based on something other than impact factors, which could include some lower-quality sources.
2	Surabhi Verma, Vibhav Singh and Som Sekhar Bhattacharyya (2021) [3]	Bibliometric analysis revealed research gaps in exploring constructs like SHRM practices, HR service quality, OP, and innovation competency regarding BD. Empirical analysis showed that better BD quality improves HR practices, service quality, and SME innovation competency.	Survey data are collected using convenience sampling, which limits generalizability. Due to the cross-sectional design, causality cannot be established.
3	Maggie M. Cheng, Rick D. Hackett (2021) [5]	Practitioner interest in algorithms has grown exponentially compared to academic research in recent years. Most academic research focuses on deterministic algorithms for operation optimization rather than probabilistic algorithms related to SHRM questions. Areas of recruitment, training, and compensation have attracted more practitioners than academic interest. Algorithms described in academic research are not accurate "black boxes," while practitioner articles provide little algorithm detail. Compared to traditional statistical modeling, algorithmic research needs to revise the theory.	The study only included high-quality academic journals, excluding some sources. More focus could be given to the specific algorithms examined.
4	Deepa Mishra, Zongwei Luo, Benjamin Hazen, Elkafi Hassini, And Cyril Foropon (2019) [6]	The results show that BDPA diffusion mediates the influence of IT deployment and HR capabilities on OP. IT deployment and HR capabilities also directly affect BDPA diffusion, which relates to OP.	Collected data from a single country, which may limit generalizability. Cross-sectional study design limits the ability to determine causality.
5	Nicole C. Jackson, Linda M. and Dunn-Jensen (2021) [7]	A four-step process is proposed for auditing organizational levels for ambidexterity, recognizing decision-making traps, realigning succession plans for ambidexterity, and testing plans using data and analytics. This process can help build competency and innovation through ambidexterity.	The model needs to be conceptual and empirically tested. Implementation challenges still need to be fully explored.
6	R.H. Hamilton, and William A. Sodeman (2020) [8]	BD could help address strategic questions about developing knowledge starts and enhancing firm capabilities. However, challenges include lacking C-suite support, analyzing dispersed data, stakeholder collaboration, and legal/ethical concerns. Social media, video analytics, and IoT data may help evaluate performance.	Empirical research relies not on a review of existing literature. Future research is needed to test ideas in practice.

TABLE I. Systematic literature review summary (*Continued*)

No.	Author	Findings: similarities and differences	Lmitations
7	Rajasshrie Pillai and Brijesh Sivathanu (2022) [12]	Descriptive and predictive non-financial and financial metrics of HR practices were uncovered. HR data quality moderates the relationship between HR practice outcomes and HR metrics. HR metrics help in HR decision-making for SHRM and affect OP.	Data was collected only from Indian companies may not be generalizable to other contexts of self-reported interview data.
8	Pauli Dahlbom, Noora Siikanen and Pasi Sajasalo, and Marko Jarvenpää (2020) [13]	The results indicate that both technical and human obstacles, operating with fundamental HR processes and traditional information systems, and poor data quality hinder the adoption of advanced HRA. These results, combined with the need for more analytics and business understanding skills, the inability to go beyond reporting, and misconceptions related to BD and traditional compliance-oriented HR culture, pose further challenges for the HR function's data analytics capacity and business partner role.	The study's explorative nature limits the depth of its investigation into specific topics. The data come from the Finnish context, which may limit generalizability. There were a small number of interviews.
9	Faisal Mahmood and Maria Saleem, Antonio Ariza- Montes and Heesup Han (2023) [14]	The study uncovered sequential mediation of organizational innovation and competitive advantage in the relationship between employee innovative job performance and firms' financial performance. The relationship was more robust when firms' BD analytics and entrepreneurial orientation were higher.	Data was collected only from manufacturing firms in Pakistan, limiting generalizability. Cross- sectional design prevents determining causality.
10	Steven McCartney and Na Fu (2022) [15]	Five significant emerging debates/challenges were identified: 1) Inconsistency in definitions of people analytics, 2) Missing evidence of impact, 3) Lack of readiness, 4) Ownership debates, and 5) Ethical/privacy concerns.	The review is limited to articles published in ABS journals during a specified period so that it may exclude other relevant works. The thematic analysis relies on the researcher's interpretation.
11	Steven McCartney and Na Fu (2022) [16]	The study's findings support the proposed chain model, suggesting that access to HR technology enables HR analytics, which facilitates EBM and enhances OP.	Data was collected from a single country so that generalizability may be limited. As the data was self-reported, there is potential for common method bias. Due to the cross-sectional design, causality cannot be determined.
12	Hila Chalutz Ben- Gal (2019) [17]	Empirical and conceptual research yields higher ROI than case-based and technical studies. Workforce planning and recruitment/selection yield the highest ROI. The framework presented to understand how HR analytics tools influence ROI.	Literature only included peer- reviewed sources, some grey literature was excluded. The categorization of articles is subjective and open to interpretation.
13	Rabia Imran, Mansour Naser Alraja and Basel Khashab (2023) [18]	Results supported hypotheses that GHRM and BD positively impact green innovation, and green innovation positively influences sustainable performance.	Cross-sectional design limits conclusions about causality. Convenience sampling limits generalizability. Self-report data risks common method bias.
14	Mandeep Kaur and Franco Gandolfi (2023) [19]	Proposed an I-HRM model showing how integrating AI in various HR functions across the talent lifecycle can create organizational value. AI can enhance talent acquisition, employee engagement, retention, development, growth, compensation, rewards, and recognition.	The conceptual model was not empirically tested, but there was a small sample size for interviews.
15	Jinou Xu and Margherita Emma Paola Pero (2023) [20]	A framework for the resource orchestration process in BDA adoption is presented. The authors associated developing and deploying relevant individual, technological, and organizational resources and capabilities with organizational BDA adoption and implementation phases. They highlighted that organizational BDA adoption can be initiated before consolidating the complete resource portfolio. Resource acquisition, capability development, and competency internalization can occur alongside BDA adoption through structured processes and governance mechanisms.	Case studies are based in Europe, so they may not generalize to other geographic contexts. Data is based on retrospective accounts, which can be subject to recall bias. Future research could incorporate a longitudinal perspective.

TABLE I. Systematic literature review summary (*Continued*)

No.	Author	Findings: similarities and differences	Lmitations
16	David Angrave, Andy Charlwood, Ian Kirkpatrick, Mark Lawrence, and Mark Stuart (2016) [21]	It was found that HR's lack of understanding of analytics, combined with limitations of HRIS/talent management software and issues with the analytics industry, means HR analytics has yet to progress beyond operational reporting. These risks exclude HR from strategic influence and do not benefit organizations or employees. Academics need to help HR develop strategic analytics skills.	It is not based on primary research, so it needs empirical evidence. The concerns raised are conceptual rather than backed by data, which can lead to bias.
17	Abdul-Nasser El-Kassar, and Sanjay Kumar Singh (2019) [22]	The proposed model proved to be a fit. The hypotheses were supported, and implications were discussed. Green innovation practices positively influence competitive advantage and organizational and environmental performance. Corporate environmental ethics, stakeholders' views, and market demand for green products positively influence green innovation practices.	Data was collected via a convenience sample in a specific region, which may limit generalizability.
18	Paula de Camargo Fiorini, Charbel Jose Chiappetta Jabbour, Enzo Barberio Mariano, Ana Beatriz Lopes de Sousa Jabbour, and Bruno Michel Roman Pais Seles (2018) [23]	It has identified 19 organizational theories that have been applied in the BD literature and discussed each one. It has also developed a research agenda with potential future questions at the intersection of each theory and BD.	The literature review is based on one database and may need to include some studies. Future empirical research is still required to test proposals from the research agenda.
19	Tan Yoon Yeh and Mafas Raheem (2021) [24]	Descriptive and PA applications in HRM are focused on staffing and retention. Talent development is an underexplored area, and data quality and skills are significant challenges.	No empirical data collection or analysis was conducted.
20	Francisco J. Álvarez-Gutiérrez, Dianna L. Stone, Ana M. Castaño, and Antonio L. García-Izquierdo (2022) [25]	Most articles have recently been published. The majority focus on economic outcomes. The importance given to ethics is growing. We need a framework for SUHRA based on the triple bottom line.	A limited number of empirical studies are available because the field is relatively new. Further research is needed.
21	José Garcia-Arroyo and Amparo Osca (2021) [26]	Five clusters of HR practices where BD has been applied were identified: selection and hiring, evaluation and development, information, learning, and knowledge, and strategy, efficiency, and performance. BD offers new SHRM opportunities and technical, methodological, and ethical challenges.	The review is limited to academic literature, excluding some practitioner perspectives. Databases searched were limited in number.

The national background also appears to be necessary. In a qualitative case study of nine Finnish enterprises, Dahlbom et al. [13] found that human and technical constraints, including poor data quality, insufficient HR processes, and skill gaps, hindered the adoption of advanced analytics. When combined with traditional HR culture, this can be problematic. On the other hand, Indian research offers more encouraging examples; Pillai and Sivathanu [12] found that descriptive and predictive metrics enhance HR decision-making and OP when data quality is excellent. The industry is also linked to varying outcomes. According to Mahmood et al.'s research [14], innovative job performance improved the financial performance of manufacturing firms when influenced by BD analytics and entrepreneurial orientation. However, causality could not be established; Verma et al. [3] found that SMEs faced more significant challenges.

However, they did identify data quality as a critical factor in enhancing HR practices, service, and innovation competence via predictive tools.

Implementation issues are often found to be problematic. Margherita [1] discovered in an SLR that obstacles to HR analytics included technical problems, a deficiency of analytical abilities, and a failure to go beyond reporting. Additionally, there have been discussions about moral issues and the absence of impact evidence, as McCartney and Fu [15a, b] point out. It seems essential to have sufficient preparation and to position usage inside a well-defined value framework, like ROI. Several variables influence success, such as the industry, country, technological challenges, and cultural preparedness.

Emerging conceptual work is putting forth new con-

ceptual frameworks. Through green innovation, an original path model examined how green SHRM and BD affect sustainable performance. Intelligent HRM (I-HRM) models anticipate how AI can improve talent processes throughout an organization's employee lifetime [14]. According to Xu and Pero [20], adopting BD analytics should be a developmental process that gradually develops the necessary competencies.

Although implementation challenges still exist, research on PA applications in SHRM is expanding. National settings, industry considerations, and organizational readiness are essential for unequal impacts. While conceptual work proposes integrative models, empirical validation is still in its early stages. There are generally opportunities to enhance strategic decision-making using data-driven insights; however, the potential is now constrained by talent gaps and other obstacles.

One recurring factor in numerous studies is the imperative for HR professionals to cultivate additional proficiencies. Cheng and Hackett [5] discovered that algorithms documented in scholarly research deviated from "true black boxes," indicating the need for greater transparency. Angrave et al. [21] argued that HR risks being excluded from strategic influence without a more profound comprehension of analytics. They emphasized the significance of collaboration between HR and analytics teams, as emphasized in other works.

Most research conducted today uses cross-sectional designs, which limits the conclusions about causation. For example, Verma et al. [3] identified correlations between variables but not causality. Sample limitations also come into play; data often comes from industries, countries, or convenience sampling rather than random selection. For example, El-Kassar and Singh [17] only collected information from businesses in the Middle East and North Africa.

Furthermore, much territory still needs to be explored. Fiorini et al.'s SLR of management theory and BD [18] discovered a thorough analysis of the junction of BD and organizational ideas. These are opportunities worth exploring more. Rather than predictive or prescriptive analytics, a significant amount of research focus is presently being placed on descriptive and diagnostic approaches (Cheng and Hackett [5], Tan Raheem [19]). This underutilization of analytical methods requires more consideration.

Some conceptual gaps are also present in practitioner work and academic research. The interest in algorithms among practitioners has increased dramatically, as reported by Cheng and Hackett [5]. In addition, García-Arroyo and Oscars [26] SLR observed that economic results had received more attention than the "triple bottom line" representing a sustainable strategy.

5. Discussion

Despite continuous improvements, the current body of knowledge about PA applications in SHRM still has many holes. To fully realize the strategic advantages of applying BD and predictive tools to enhance important HR initiatives, more research should concentrate on contextual factors, expand the scope of data sources and analytical techniques, empirically test conceptual models, and investigate novel and creative application areas. Since their problems are multifaceted and interdisciplinary, better collaboration between HR analytics and other departments is essential. It is anticipated that advancements in these fields would support the expansion of data-driven decision-making in SHRM.

The SLR found that although BD and PA research in the SHRM domains is still in its infancy, there is still much room to grow the corpus of knowledge. Several conceptual models are proposed, including these methods within frameworks like sustainable performance, intelligent SHRM, and succession planning. Nevertheless, actual data is still required to support these theories.

Variations in the effects have been noted, depending on the unique country, industry characteristics, and the organization's preparedness. This result indicates a need for more studies tailored to the specific situation. It would be beneficial to employ broader sample sources, longitudinal designs, and mixed-methods research methodically to overcome the constraints of current cross-sectional surveys and small sample sizes.

Attention should also be given to exploring novel technologies, such as machine learning algorithms, and implementing extra strategic procedures in HR. Skills development is crucial for HR to effectively collaborate with analytics teams on strategic projects from a practical perspective. Continual examination is necessary to address the technical obstacles of scattered data sources, integration requirements, and privacy/ethics considerations. Emerging sustainable models still connect people's activities to many organizational results beyond just economic ones.

This review provides a synopsis of the current research on BD and prediction methods in SHRM. Considerable advancements have been achieved in outlining the potential advantages of these methods and the obstacles limiting their implementation. To fully harness the transformative power of data-driven decision-making, it is crucial to conduct further empirical testing of conceptual frameworks, explore new methodological and contextual factors, and prioritize addressing skills gaps and implementation challenges. These efforts contribute to filling existing knowledge gaps and advancing the potential of SHRM.

Focusing on overlooked research areas offers numerous noteworthy prospects for further investigation in SHRM. Longitudinal studies and randomized trials can establish a causal relationship between variables and provide valuable insights. Moreover, broadening the context range through

data collection from many industries or countries would enable the examination of the results' applicability.

A mixed-methods technique can enhance research. This technique integrates qualitative interviews, focus groups, or observation with quantitative analysis. This holistic method can enhance theory development and provide a more comprehensive grasp of the subject matter by empirically evaluating proposed conceptual models and frameworks.

Advanced methodologies like machine learning, natural language processing, and spatial analytics in SHRM might enhance the area. Partnering with enterprises to implement experimental treatments informed by research findings can result in essential assessments and tangible implementations. Studying competency frameworks and performing skills gap analyses can provide insights into the need for upskilling.

Moreover, research must focus on strategic processes and outcomes that have yet to be well investigated, going beyond the scope of recruiting and retention. Future research includes areas such as innovation or engagement. Developing customized evaluation procedures for HR strategy contexts and comparing various analytical tools are crucial in determining the best appropriate tactics for diverse SHRM difficulties.

Additionally, examining the role of interactive dashboards and data visualization in sensemaking and decision-making inside SHRM may provide insightful information. Understanding how to effectively communicate and incorporate predictive insights into decision-making processes and company culture is crucial. Furthermore, analyzing change management techniques and the leadership skills required to support implementing data-driven projects across functions is essential.

It is crucial to carefully assess the balance between the need for analysis, employees' rights, and the level of transparency inside the business. Analyze privacy and ethics frameworks to determine the most effective practices. Additionally, gather input from the workforce using a combination of research approaches to gain valuable insights on how analytics may best enhance engagement, development, and well-being.

Frameworks that establish data governance and explain responsibilities across HR, IT, and analytics teams must be evaluated to improve outdated HRIS systems and integrate various internal and external data sources. Assessing the value added by predictive technologies concerning the costs and level of supervision needed for companies of varying sizes is crucial.

Working with vendors to test innovative people analytics technologies like blockchain, augmented analytics, or artificial intelligence can offer new insights into the field. Return on investment analyses and identifying non-financial metrics that accurately reflect short-, medium–, and long-term consequences of these tactics are necessary for assessing the efficacy of SHRM programs.

Addressing these opportunities with a robust multidisciplinary team effort can raise SHRM's comprehension and application of BD and PA to new heights. Considering the needs of different stakeholders can improve both academic research and practical application, leading to new insights as the field proliferates.

6. Limitations

It is crucial to recognize and address this study's limitations. The literature reviewed in this study is confined to articles within the Scopus database, which may offer a partial perspective. Future researchers are encouraged to explore multiple databases, such as Web of Science and Google Scholar, to mitigate the limitations associated with this study. Future research endeavors may refine the existing literature by employing a broader scope for inclusion and exclusion criteria. Acknowledging these limitations will provide insights for future research directions.

7. Conclusion

To sum up, there is much room for growth and more research on PA in SHRM. There are still many opportunities to investigate the theoretical underpinnings, contextual components, and practical applications that underpin this emerging field. More studies in this area could advance our academic knowledge and guide practical application within businesses. The HR department may effectively serve as a strategic business partner by employing data-driven decision-making. Addressing the complicated issues in this sector requires constant cooperation between several disciplines. Information systems, management, data science, SHRM, and Industrial-Organizational Psychology must address technological, human, and implementation elements. We can only manage PA's complexity in SHRM using an interdisciplinary approach. With the proliferation of data and analytical techniques, academics and practitioners need to develop sustainable, ethical practices that prioritize the interests of all stakeholders. These practices include addressing issues related to improving capacities, overseeing ethical oversight, managing change, and demonstrating the company's observable advantages of PA.

In the end, employing and implementing PA has the potential to completely transform how companies allocate and utilize their most precious resource: human capital. By implementing this innovative tool, organizations can enhance their ability to manage resources and make strategic decisions that lead to long-term success.

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