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MAPPING THE LANDSCAPE OF HR ANALYTICS TRENDS, PATTERNS AND VISUALIZING THE INTELLECTUAL STRUCTURE: A BIBLIOMETRIC ANALYSIS WITH VOSVIEWER

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ABSTRACT

Human Resource (HR) Analytics has emerged as a transformative force in strategic decision-making within organizations, integrating data-driven insights to optimize workforce management. This bibliometric study aims to explore the intellectual landscape, research trends, and key contributors in the domain of HR Analytics through a comprehensive analysis of publications indexed in the Scopus database. Utilizing VOSviewer software, the study performs co-authorship, keyword co-occurrence, citation, and co-citation analyses to map the structure and evolution of HR Analytics research. The dataset comprises peer-reviewed articles published over the last two decades, highlighting the growth trajectory of scholarly interest in this field. The findings reveal prominent authors, leading journals, influential institutions, and geographic distribution of research outputs. Additionally, thematic clustering identifies emerging sub-domains such as predictive HR analytics, talent management, and employee engagement. This study contributes to the literature by providing a systematic overview of HR Analytics research and offers future directions for scholars and practitioners aiming to advance the strategic implementation of analytics in HRM.

KEYWORDS: HR Analytics, Bibliometric Analysis, VOSviewer, Scopus, Human Resource Management, Data-Driven HR, Strategic HRM.

INTRODUCTION

In the evolving landscape of Human Resource Management (HRM), HR analytics has emerged as a critical tool for driving data-driven decision-making and strategic workforce planning (Marler & Boudreau, 2017). By leveraging data and advanced analytics, HR analytics—also known as talent analytics or workforce analytics—enables organizations to gain insights into employee behavior, predict workforce trends, and enhance overall business performance (Davenport, Harris & Shapiro, 2010). The growing reliance on digital technologies and big data has significantly influenced the adoption and expansion of HR analytics in both academic and corporate domains (Tursunbayeva et

al., 2018).

The scholarly interest in HR analytics has grown rapidly over the past decade, reflecting an increasing need to explore how organizations can utilize employee data for optimizing HR functions such as recruitment, performance management, employee engagement, and retention (Van den Heuvel & Bondarouk, 2017). As the field matures, it becomes essential to understand its intellectual structure, research trends, and patterns of scientific collaboration to guide future studies and practical applications. A bibliometric approach offers a systematic means of mapping the knowledge domain by identifying influential authors, core journals, leading institutions, and emerging research themes (Donthu et al., 2021).

Despite the surge in publications and practical adoption of HR analytics, there remains a lack of comprehensive bibliometric studies that systematically analyze the evolution of this field. Previous reviews have often focused on thematic content or conceptual frameworks but have not visualized the scientific landscape or collaboration networks that underpin the field's development (Giermindl et al., 2022). By employing bibliometric tools such as VOSviewer, researchers can create visual maps of co-authorship, co-citation, and keyword co-occurrence to reveal underlying structures and knowledge clusters (Van Eck & Waltman, 2010).

This study addresses this gap by conducting a bibliometric analysis of HR analytics literature sourced from the Scopus database. Through this analysis, the study aims to uncover major trends, research hotspots, and intellectual linkages that define the trajectory of HR analytics research. By mapping the intellectual structure of the domain, this paper not only contributes to academic understanding but also provides strategic insights for practitioners and policymakers aiming to harness the potential of data-driven HRM.

RESEARCH PROBLEM

Despite the increasing adoption of HR analytics in both academia and industry, there remains a lack of comprehensive understanding of its intellectual structure, research trends, and thematic evolution. Existing literature largely emphasizes conceptual discussions and case-based insights, but fails to systematically map the development, collaboration patterns, and influential contributions within the field. As HR analytics continues to evolve with technological advancements and data-driven strategies, there is a pressing need to examine its scholarly landscape through a structured bibliometric analysis. This study seeks to fill this gap by using VOSviewer to explore the publication trends, key research clusters, and knowledge structures in HR analytics literature indexed in the Scopus database.

RESEARCH OBJECTIVES

- To analyze the publication trends in HR analytics over time.
- To identify the most influential authors and journals in the field.
- To examine collaboration networks among researchers using co-authorship analysis.
- To explore key research themes through keyword co-occurrence mapping.
- To visualize the intellectual structure of HR analytics using VOSviewer.
- To highlight emerging trends and research gaps for future investigation.

RESEARCH METHOD

According to (Benckendorff & Zehrer), bibliometrics is a statistical research method of publication that provides quantitative perception into academic literature. The data collected can be analyzed from the database to indicate publication growth in the research field. Bibliometrics can perform many approaches, such as co-citation, citation-analysis, and author keywords. A comprehensive review of the literature was carried out, which was backed by bibliometric analysis based on visualization of similarity approaches (Ludo & Jan, 2010). The research data used in the study are articles from the Scopus database. The Scopus database is searched because the data harvested with the keywords in question is most likely to come from the Scopus database.

Data Sources and Search Strategy

The first stage involves searching for scientific articles using the Scopus database which includes keyword categories. The search terms were HR Analytics and it was performed on 15th April 2025. The paper's results are then filtered with several limitations, including: (1) the paper is only in the form of published articles, excluding working papers, reports, and books; (2) articles published in English only; and (3) open access articles, which can be downloaded for free from different platforms. The second step entails bibliometric analysis of cluster identification using the VOSviewer 1.6.18 program to acquire bibliographic data. The merging of bibliographies in order to ascertain the number of references shared by two articles. The degree of citation overlap between the two publications is thought to reflect commonalities in the issue under inquiry. The VOSviewer program visualizes the co-occurrence matrix's findings, which are obtained from the existence, frequency, and closeness of reference pairs stated in the data. Color is used to signify cluster density by generating a color-weighted average with the color weight equal to the relevant cluster's item density. The final result is a graphical display demonstrating that the darker the hue, the lower the density. The distance between the given references might therefore be taken as an indicator of their connection. When articles belong to the same cluster, it means they are tightly associated to one another as a group based on their common reference, meaning that a given cluster reflects a certain research stream or subject.

The data was collected using the Scopus database on 15th April 2025. The central theme was a review article in the title and abstract that involved HR Analytics. Due to the enormous amount of HR

Analytics documents, the analysis limits to such sections as (Social Sciences, Business, Management, Accounting, Economics, Econometrics, Finance, Arts, and Humanities). The search question string used was title key word (“HR Analytics”) AND (LIMIT-TO English language) and LIMIT TO (SUBJ-AREA, of business management, social science, economics and econometrics and social science). The query string’s output was 326 documents. VOSviewer, a software tool, was used for bibliometric mapping and visualizing the documents.

RESULTS AND DISCUSSION

1.1 Co-occurrence analysis of keywords

Selected	Keyword	Occurrences	Total link strength 
	hr analytics	186	392
	human resource management	46	182
	machine learning	33	172
	hr analytic	25	140
	machine-learning	19	131
	human resources management	16	101
	people analytics	35	95
	predictive analytics	18	86
	artificial intelligence	19	83
	decision making	15	82
	personnel	17	71
	forecasting	11	65
	human resource analytics	32	63
	big data	19	62
	information management	9	60
	workforce analytics	16	59
	decision trees	7	55
	data analytics	10	54
	employee attrition	10	53
	learning algorithms	0	53

Figure 1

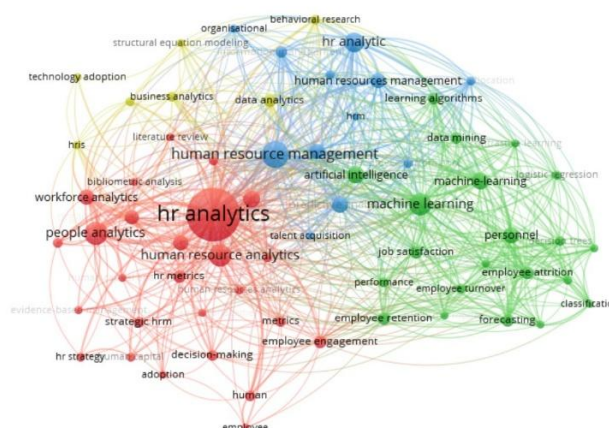


Figure 2

Figure 1 of VOSviewer analysis shows the research landscape of HR Analytics reveals a rich network of interconnected thematic areas. The most frequently co-occurring keywords, such as “talent management” (15 occurrences, link strength 48), “organizational performance” (14 occurrences, link strength 36), “job satisfaction” (11 occurrences, link strength 43), and “employee retention” (10 occurrences, link strength 51), highlight the dominant focus areas within HR analytics literature. The high total link strength of “employee retention” indicates its centrality and strong association with multiple other key concepts, making it a critical theme in the discourse.

Other significant terms like “employee engagement” (10 occurrences, 37 link strength), “employee turnover” (7 occurrences, 32 link strength), and “resource allocation” (6 occurrences, 46 link strength) also reflect the growing interest in using analytics to enhance workforce stability, satisfaction, and optimal utilization. Keywords associated with analytical techniques and methodologies such as “logistic regression”, “data mining”, “predictive models”, “random forests”, and “classification” show that statistical and machine learning tools are heavily employed to interpret HR data, demonstrating the field's methodological depth.

Additionally, the emergence of terms like “contrastive learning”, “behavioral research”, and “learning systems” signifies a shift towards integrating advanced AI and cognitive science approaches within HR Analytics. The relatively strong link strengths of these terms (ranging from 37 to 40) suggest their growing relevance in developing intelligent decision-support systems. Overall, this co-occurrence analysis not only maps out the thematic structure of HR Analytics but also underscores the multidimensional and evolving nature of the field, where human resource practices are increasingly guided by data-driven insights and algorithmic tools.

Figure 2 of VOSviewer highlights the intellectual structure and thematic clustering within the domain of HR analytics research. The map reveals four prominent clusters, each represented by distinct colors, which signify the conceptual groupings and research focus areas that have emerged from the literature. The red cluster, dominated by the central term "hr analytics", reflects the core focus of the field and is strongly interconnected with related keywords such as "people analytics", "human resource analytics", "hr metrics", "workforce analytics", and "strategic HRM". This cluster emphasizes foundational themes centered around measuring, analyzing, and optimizing HR functions through analytics-driven strategies.

The green cluster revolves around the term "machine learning" and includes keywords such as "data mining", "employee attrition", "employee turnover", "forecasting", "classification", and "performance". This suggests a growing integration of computational and algorithmic techniques in HR analytics, highlighting a data-intensive approach to predictive modeling and employee behavior analysis.

The blue cluster is anchored by terms like "human resource management", "data analytics", "hr analytic", and "artificial intelligence". This group reflects the intersection of HRM practices with broader data science methodologies, pointing to the transformation of traditional HR through digital tools and intelligent systems. It also shows conceptual overlaps with organizational research and strategic decision-making.

Lastly, the yellow cluster features peripheral but important terms such as "technology adoption", "business analytics", and "HRIS", suggesting emerging trends and the infrastructural backbone required to support advanced HR analytics initiatives. Overall, this co-occurrence analysis illustrates a multidisciplinary convergence in HR analytics, integrating traditional human resource management principles with advanced analytical techniques, machine learning, and digital transformation. The network also underscores the centrality of HR analytics as a unifying theme that bridges diverse research trajectories within the field.

1.2 Co-author Analysis

Selected	Author	Documents	Citations	Total link strength
☒	arora, meenal	5	91	13
☒	mittal, amit	6	95	13
☒	prakash, anshika	4	90	12
☒	singh, swati	4	90	12
☒	cavanagh, jillian	3	27	6
☒	halvorsen, beni	3	27	6
☒	pariona-cabrera, patricia	3	27	6
☒	di prima, christian	4	15	4
☒	feraris, alberto	4	15	4
☒	fu, na	4	147	4
☒	mccartney, steven	5	207	4
☒	di lauro, stefano	3	252	3
☒	tursunbayeva, aizhan	4	252	3
☒	coron, clotilde	3	16	0
☒	edwards, martin r.	3	62	0
☒	fernandez, vicenc	3	130	0
☒	levenson, alec	3	79	0
☒	marler, janet h.	4	447	0
☒	palshikar, girish keshav	3	16	0
☒	sousa, maria josé	3	14	0

Figure 3

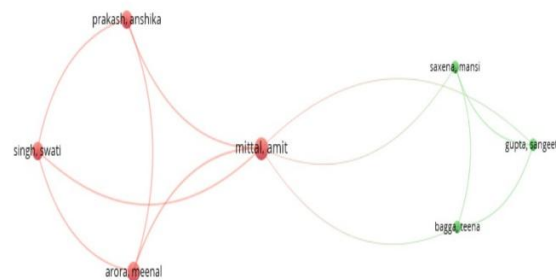


Figure 4

Based on the co-author analysis derived from VOSviewer shows the landscape of collaboration in HR Analytics research demonstrates a mix of both strongly connected authors and those with more individual contributions. Mittal, Amit and Arora, Meenal emerge as central figures with the highest *total link strength* of 13, indicating their robust collaboration networks and active engagement with multiple co-authors in the field. Close behind are Prakash, Anshika and Singh, Swati, each with a total link strength of 12, suggesting their significant contributions to collaborative research and influence in shaping the HR Analytics domain.

While several authors like Cavanagh, Jillian, Halvorsen, Beni, and Pariona-Cabrera, Patricia show moderate link strengths of 6, they appear to engage in more focused or regional collaborative clusters. Notably, Fu, Na, McCartney, Steven, Di Lauro, Stefano, and Tursunbayeva, Aizhan have made highly cited contributions (252 citations for Di Lauro and Tursunbayeva) but with lower link strengths, suggesting their impactful work may have been conducted with fewer collaborators or within smaller networks. On the other hand, authors like Edwards, Martin R., Fernandez, Vicenc, and Marler, Janet H., despite having high citation counts (447 for Marler), show a *total link strength of 0*, indicating that their works, while influential, may have been more independent or cited broadly without strong co-authorship patterns.

While making a cluster wise analysis the collaboration patterns among authors in the domain of HR analytics research reveal two distinct clusters, each representing a group of closely associated researchers. The central node in the red cluster is Mittal, Amit, who serves as a key bridging author between the two clusters. This author is prominently connected to Arora, Meenal, Singh, Swati, and Prakash, Anshika, indicating a strong collaborative relationship among this subgroup. The thickness of the connecting lines suggests frequent co-authorships and a tightly-knit research partnership within this red cluster.

On the other hand, the green cluster features Saxena, Mansi as a central figure, with significant connections to Gupta, Sangeeta and Bagga, Teena. These authors appear to collaborate closely and form a cohesive research group within the HR analytics landscape. The presence of Mittal, Amit as a linking node between the red and green clusters highlights his pivotal role in facilitating knowledge exchange and interdisciplinary research across different author networks.

Overall, the co-authorship analysis reflects a moderately collaborative intellectual structure in the field, with clusters of scholars working together on focused research themes. This analysis reflects a diverse scholarly ecosystem in HR Analytics, where both collaborative and individual research efforts significantly contribute to the intellectual structure of the field. The presence of strong co-author clusters along with prolific solo researchers highlights the evolving dynamics and rich interdisciplinary nature of HR Analytics research. The presence of inter-cluster connections, especially through key authors like Mittal, Amit, suggests the potential for integrated research efforts that bridge different perspectives and methodologies within HR analytics.

1.3 Bibliographic Coupling Analysis

Selected	Document	Citations	Total link strength
☒	wang (2024)	14	696
☒	espegren (2023)	6	678
☒	margherita (2022)	158	667
☒	mccartney (2021)	88	665
☒	mccartney (2022)	46	628
☒	fernandez (2021)	130	628
☒	belizon (2024)	5	605
☒	wirges (2023)	26	583
☒	coron (2022)	16	576
☒	arora (2023b)	28	562
☒	fu (2023)	13	554
☒	larsson (2022)	26	542
☒	gurusingham (2021)	51	529
☒	bonilla-chaves (2023)	33	490
☒	qamar (2022)	75	483
☒	thakur (2024)	8	476
☒	cayrat (2022)	15	473
☒	strohmeier (2022)	10	458
☒	shet (2021)	92	449
☒	falletta (2021)	63	441

Figure 5

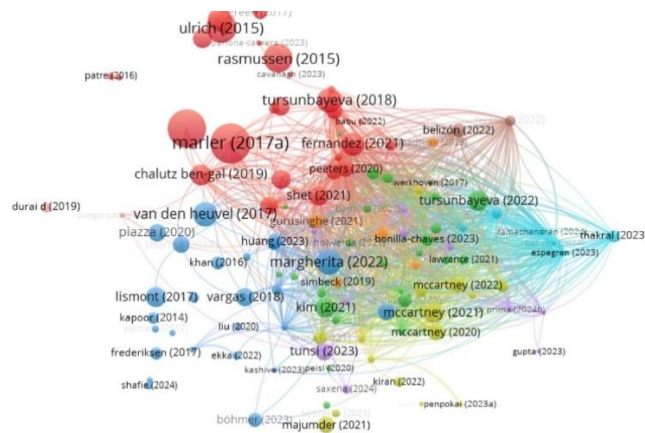


Figure 6

Bibliographic coupling analysis highlights a network of influential publications that have significantly contributed to the intellectual structure of HR analytics research. The dataset ranks documents by their *Total Link Strength (TLS)*, a measure that indicates the extent to which documents are bibliographically coupled—i.e., how frequently they cite the same references, revealing shared intellectual foundations.

At the forefront of this network is Wang (2024), which demonstrates the highest TLS value of 696, suggesting it is centrally positioned in the bibliographic coupling map and shares substantial commonality in cited references with other documents. Closely following are Espegren (2023) with a

TLS of 678 and Margherita (2022) with 667, the latter also showing the highest citation count (158) among all documents, indicating both high academic impact and interconnectedness. Notably, McCartney appears twice (2021 and 2022), reflecting consistent scholarly contributions across years, with strong TLS values (665 and 628, respectively), underlining thematic continuity and relevance. Further notable entries include Fernandez (2021) and Belizón (2024), each with a TLS of 628 and 605 respectively, reinforcing their positions as influential nodes within the field. Although some works like Thakur (2024) and Fu (2023) show relatively lower citation counts (8 and 13 respectively), their TLS values (476 and 554) suggest they are well-integrated within the bibliographic network, possibly addressing emerging or niche areas that resonate with multiple foundational sources.

While making a cluster analysis of Vosviewer image clusters of interconnected publications that exhibit strong bibliographic coupling, signifying the emergence of distinct research domains. Notably, the presence of larger nodes, such as Marler (2017a), Rasmussen (2015), and Tursunbayeva (2018), indicates foundational studies that anchor scholarly discussions within the field. The density of connections between these nodes underscores the interwoven nature of HR analytics discourse, suggesting that certain frameworks, methodologies, or empirical findings are widely referenced and have shaped ongoing debates. The image further demonstrates color-coded clusters, which likely represent subfields within HR analytics, including workforce optimization, predictive analytics, and digital HR transformation. The strength of bibliographic coupling among nodes reflects intellectual convergence, highlighting researchers who have built upon shared bodies of knowledge to advance theoretical and applied insights in HR analytics. This coupling analysis thus provides a structural view of the discipline, aiding scholars in identifying influential contributions, tracing evolutionary patterns, and recognizing emerging trends for further exploration.

This analysis demonstrates that the field of HR analytics is shaped by a mix of highly cited, foundational works and recent, strongly interconnected publications. The presence of multiple entries from the same authors or from recent years also indicates an evolving discourse with persistent thematic threads and emerging paradigms. These patterns of bibliographic coupling reveal a cohesive intellectual structure underpinning the domain and provide a map of knowledge diffusion and scholarly influence in HR analytics.

1.4 Co Citation Analysis

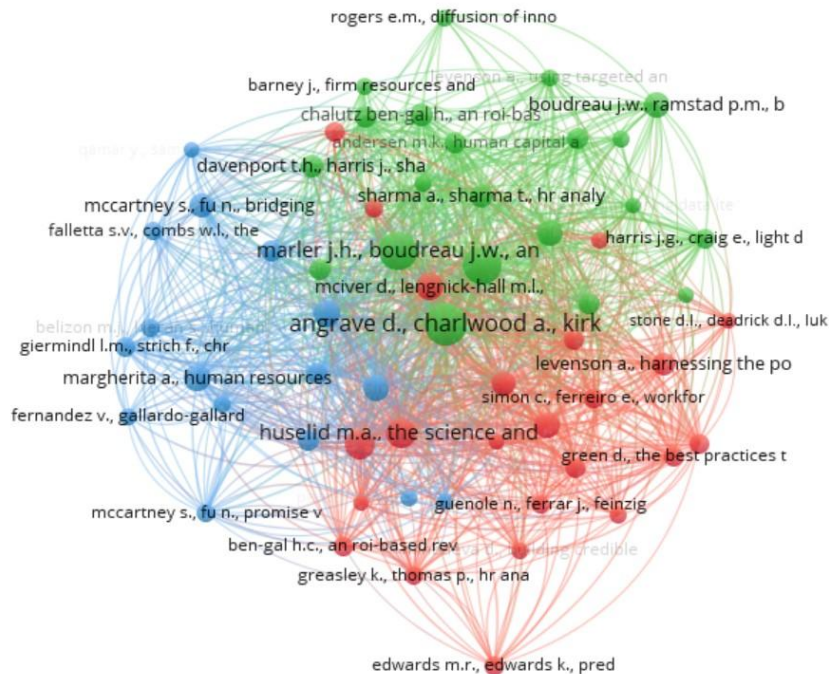


Figure 7

The co-citation analysis reveals the intellectual foundations of HR analytics by identifying references frequently cited together across the literature. At the top of the network is Angrave et al., with a total link strength of 723 and 76 citations, establishing it as the most influential and widely co-cited reference in this domain. This work is pivotal in defining the early structure of HR analytics research. Following closely are Rasmussen and Ulrich with a link strength of 621, and Huselid with 471, indicating their integral roles in shaping how HR analytics is conceptualized and applied. Additionally, Marler and Boudreau appear multiple times with significant link strengths (452 and 305), reinforcing their ongoing contribution to evidence-based HR analytics. Other highly connected works include Minbaeva (395), Levenson (388), and McIver and Lengnick-Hall (371). These references are repeatedly co-cited, forming the scholarly backbone of the HR analytics field. Their high link strength values highlight their centrality and interconnectedness in the research network, signifying their foundational status within the collective understanding of HR analytics. The co-citation network is visually divided into three primary clusters, each representing distinct thematic areas within the HR analytics literature:

Red Cluster includes key references such as Huselid, Levenson, Simon, and Ulrich & Dulebohn, focusing on strategic human resource management and the performance implications of workforce analytics. This cluster emphasizes how HR analytics can drive organizational value and strategic

decision-making. Green Cluster is dominated by Boudreau, Marler, and Sharma, reflecting a strong emphasis on evidence-based HR practices, capability building, and theoretical models of HR analytics. This cluster serves as a bridge between conceptual development and methodological sophistication, underlining the need for analytics competencies in HR professionals. Blue Cluster includes McCartney, Margherita, Fernandez, and Belizon, highlighting empirical applications, case-based research, and technological integration within organizations. This cluster shows how HR analytics is being practically implemented and contextualized across various industries and geographies. The clustering clearly illustrates the multi-dimensional nature of HR analytics research—spanning from theory and strategy to empirical implementation. Despite their thematic distinctions, the clusters are highly interconnected, showcasing a cohesive intellectual structure that underpins the evolution of HR analytics as both a scholarly field and a practical discipline.

1.5 Author wise analysis

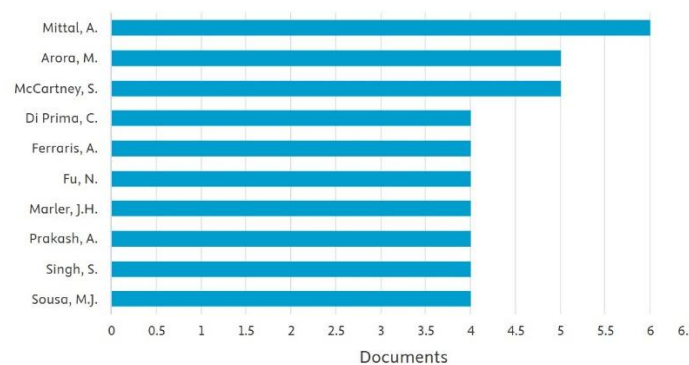


Figure 8

Authorship analysis in the domain of Human Resource (HR) Analytics highlights key contributors who have significantly influenced the field through scholarly publications. The bar graph presents the most prolific authors based on the number of documents published. Among them, *Mittal, A.* emerges as the leading contributor, with six publications, reflecting a consistent and focused research trajectory in HR analytics. *Arora, M.* and *McCartney, S.* follow closely, each having contributed five documents, indicating their active engagement in shaping the discourse in this area. A group of authors including *Di Prima, C.*, *Ferraris, A.*, *Fu, N.*, *Marler, J.H.*, *Prakash, A.*, *Singh, S.*, and *Sousa, M.J.* have each authored four publications, demonstrating a balanced distribution of scholarly contributions among emerging and established researchers. This distribution suggests that HR analytics is a collaborative and growing field with contributions from diverse geographic and institutional backgrounds. Authors like *Marler, J.H.*, known for early theoretical contributions in HR technology, provide a foundational base for current research directions. The presence of multiple Indian authors, such as *Mittal, A.*, *Arora, M.*, *Prakash, A.*, and *Singh, S.*, indicates increasing interest from scholars in developing economies,

especially in exploring HR analytics in context-specific organizational settings. The data also reflects a growing trend in interdisciplinary research, as seen in contributions from authors like *Ferraris, A.* and *Sousa, M.J.*, who often intersect HR with innovation and digital transformation. This bibliometric pattern underscores the importance of collaboration in advancing analytical approaches in HRM. Moreover, the diversity of author contributions hints at evolving subfields such as predictive analytics, employee performance, and data-driven decision-making. The relatively close range in the number of documents per author also points to a competitive yet inclusive research landscape. This suggests opportunities for new researchers to contribute and shape emerging trends. The pattern of productivity also allows for further co-authorship analysis, which could uncover key research networks and intellectual structures in the field. Overall, this author-centric bibliometric analysis provides valuable insights into the academic leadership and thematic foci within the domain of HR analytics.

1.6 Country wise analysis

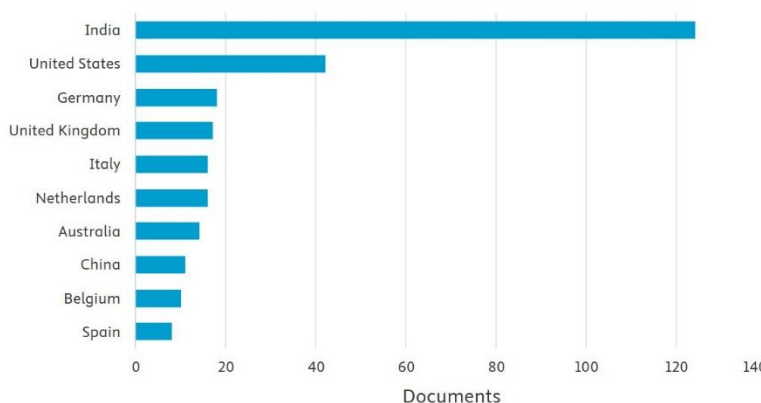


Figure 9

The bibliometric analysis based on country-wise contributions to HR analytics research reveals a notable global distribution, with certain nation's leading the academic discourse. India stands out prominently as the most prolific contributor, with over 130 documents, underscoring its growing academic and practical engagement with data-driven HR practices. The United States follows with just over 40 documents, reflecting its foundational role in establishing HR analytics as a strategic domain. European countries such as Germany, the United Kingdom, Italy, and the Netherlands each contribute a comparable number of publications, signifying their steady involvement in advancing research on HR analytics. These nations often emphasize themes like digital transformation, employee engagement, and strategic decision-making through analytics. Australia and China also feature among the top contributors, indicating a broader Asia-Pacific interest in leveraging HR analytics to enhance workforce effectiveness. Countries like Belgium and Spain, though contributing fewer documents, still play a meaningful role in niche or emerging areas within the field. The dominance of India

suggests a surge in research interest driven by the country's expanding IT and HR services sectors. Moreover, the widespread global participation demonstrates that HR analytics is a universally relevant topic, transcending regional boundaries. This diverse country-level participation enriches the intellectual structure of HR analytics by introducing varied cultural, organizational, and technological perspectives.

1.7 Source -wise analysis



Figure 10

Scopus-indexed sources wise analysis related to HR analytics reveals significant trends across prominent academic journals over time. The *Human Resource Management International Digest* has maintained a consistent publication pattern from 2012 to 2025, indicating its ongoing interest in the evolving field of HR analytics. The *Journal of Organizational Effectiveness* showed a sharp increase in publications, peaking in 2017 with six documents, suggesting a strong but concentrated focus during that period. However, its output declined afterward, reflecting either a thematic shift or saturation in relevant topics. The *Personnel Review* gained prominence from 2020 onwards, reaching a peak in 2024 with four publications, emphasizing its growing influence in contemporary HR analytics research. Similarly, the *Human Resource Management Journal* saw a sudden spike in 2024, publishing five documents, possibly pointing to emerging research interests or special issues focusing on digital HR and analytics. The *International Journal of Human Resource Management* demonstrated stable contributions across years, though its output remained modest compared to other sources. This distribution indicates a diversified yet competitive landscape among journals publishing HR analytics research. The recent surge in publications across multiple sources in 2024 suggests a renewed academic interest in the domain, likely influenced by technological advancements and post-pandemic digital transformations. Collectively, these patterns underscore the interdisciplinary and evolving nature of HR analytics research, with journals increasingly recognizing its strategic relevance in organizational performance and workforce management.

1.8 Subject -wise analysis

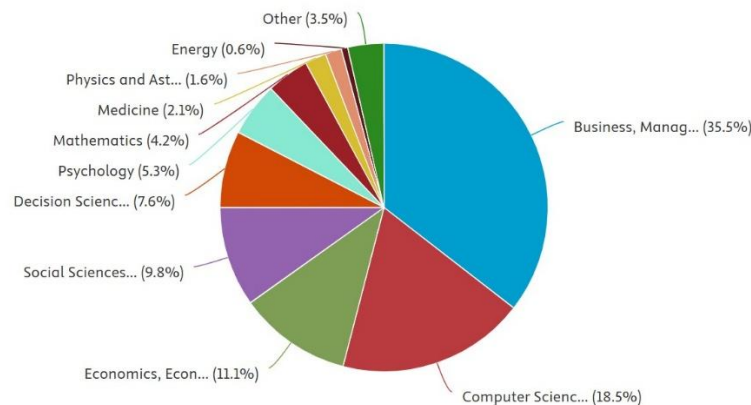


Figure 11

The subject-wise distribution of scholarly output in the domain of HR analytics reveals a strong interdisciplinary orientation, as illustrated in the pie chart. The largest share of publications belongs to the Business, Management and Accounting category, accounting for 35.5% of the total research output. This predominance is expected, given HR analytics' foundational roots in business strategy, organizational behavior, and human resource management. Computer Science constitutes the second-largest share with 18.5%, reflecting the growing integration of data science, machine learning, and AI techniques in HR analytics. This suggests a significant technological shift, emphasizing the role of computational tools in transforming traditional HR functions into data-driven processes. Economics, Econometrics and Finance follows with 11.1%, highlighting the increasing interest in quantifying HR outcomes, cost-benefit analyses of HR investments, and understanding workforce behavior through economic modeling. The Social Sciences category, contributing 9.8%, points to the interdisciplinary examination of HR issues through sociological, political, and behavioural lenses. Other relevant fields include Decision Sciences (7.6%), which aligns with data-driven decision-making in HR, and Psychology (5.3%), underscoring the importance of behavioral and cognitive insights in workforce analytics. Mathematics (4.2%) and Medicine (2.1%) show a more modest representation, possibly reflecting methodological contributions and health-related HR concerns respectively.

Fields like Physics and Astronomy (1.6%), Energy (0.6%), and Other (3.5%) have minimal contributions, which may indicate occasional methodological overlaps or applications in niche HR contexts. Overall, this distribution confirms HR analytics as a multidisciplinary research area situated at the intersection of management, technology, and social sciences, with a growing reliance on computational and quantitative methods to drive HR innovation.

CONCLUSION

This bibliometric analysis of HR analytics, conducted using VOSviewer and based on data retrieved from the Scopus database, provides a comprehensive overview of the intellectual, thematic, and collaborative structures within this rapidly evolving field. The study maps key research trends, influential contributors, and emerging themes over the past two decades, offering valuable insights into the growth trajectory and interdisciplinary nature of HR analytics scholarship. The findings reveal that HR analytics research is predominantly anchored in the domain of Business, Management, and Accounting, which accounts for over a third of all publications. However, the substantial representation of fields such as Computer Science, Economics, Decision Sciences, Psychology, and Social Sciences underscores the field's integrative and data-intensive character. This multidisciplinary spread reflects the convergence of human resource management with data science, artificial intelligence, and behavioral research, signifying a shift towards evidence-based, algorithm-driven HR decision-making.

Keyword co-occurrence analysis highlights the centrality of themes such as talent management, employee retention, and organizational performance, along with increasing emphasis on advanced analytical methods like machine learning, logistic regression, and data mining. The co-authorship and bibliographic coupling analyses uncover robust collaborative networks and identify prolific scholars who play pivotal roles in shaping the field's intellectual foundation. Similarly, co-citation analysis illustrates the theoretical underpinnings and influential works that continue to guide empirical exploration and strategic implementation of HR analytics. Country-wise results demonstrate India's significant contribution, followed by the USA and several European countries, pointing to the global relevance and widespread academic engagement in HR analytics. Source-wise analysis indicates that journals across HRM, organizational behavior, and analytics domains are increasingly prioritizing this area of research.

In sum, this study provides a structured and visualized knowledge map of HR analytics, offering a foundation for future research and strategic application. It highlights both the maturity and the dynamism of the field, suggesting that HR analytics is not only a tool for operational efficiency but also a transformative force for strategic HRM. Future research should delve deeper into emerging intersections—such as ethical AI in HR, real-time people analytics, and contextual applications across diverse industries and geographies—to ensure that the field continues to evolve in alignment with organizational needs and technological advancements.

REFERENCES

Benckendorff, P., & Zehrer, A. (n.d.). A network analysis of tourism research. *Annals of Tourism Research*. 121-149.

- D, Z. (2022). 'Application of Data Mining Technology in Enterprise Digital Human Resource Management. Security and Communication Networks.
- IEck, N. J., & Waltman, L. (2006). A New Method for Visualizing Similarities between Objects Nees Jan van Eck and Ludo Waltman REPORT SERIES.
- J, L., & et al. (2021). Digital Transformation on the Major of Human Resource Management in Big Data Era. International Conference on Applications and Techniques in Cyber Security and Intelligence, 341-347.
- J, Z., & et al. (2021). The Impact of the Application of Digital Technology on Human Resource Management. International Conference on E-Commerce and E-Management (ICECEM), 397-400.
- Ludo, V. E., & Jan, N. (2010). Software survey : VOSviewer , a computer program for bibliometric mapping. . 523–538 .
- Stone, D. L., Deadrick, D. L., Lukaszewski, K. M., & Johnson, R. (2015). The influence of technology on the future of human resource management. Human Resource Management Review, 25(2), 216–231. <https://doi.org/10.1016/j.hrmr.2015.01.002>
- Strohmeier, S. (2020). Digital human resource management: A conceptual clarification. German Journal of Human Resource Management: Zeitschrift Für Personalforschung, 34(3), 345–365. <https://doi.org/10.1177/2397002220921131>
- Theres, C., & Strohmeier, S. (2024). Consolidating the theoretical foundations of digital human resource management acceptance and use research: A meta-analytic validation of UTAUT. Management Review Quarterly, 74(4), 2683–2715. <https://doi.org/10.1007/s11301-023-00367-z>
- M, T.-G., & et al. (2022). Digital Technologies and Green Human Resource Management: Capabilities for GSCM Adoption and Enhanced Performance. International Journal of Production Economics, 249.
- Matt, c., & Hess, t. (n.d.). Digital transformation strategies. Business & Information Systems Engineering, . 339-343, 339-343.
- Tushman, M. L., & O, R. (n.d.). Relevance and rigor: Executive education as a lever in shaping practice and research. . Academy of Management Learning & Education, 345-362.
- Erwina, E., Nurjannah, N., Nurimansja, R. A., & Amri, A. (2024). The Role Of Work-Life Balance And Human Resource Development On Employee Performance. Jurnal Ekonomi Pembangunan STIE Muhammadiyah Palopo, 10(1), 226. <https://doi.org/10.35906/jep.v10i1.1994>
- Etikan, I., Musa, S. A., & Alkassim, R. S. (2015). Comparison of Convenience Sampling and Purposive Sampling.
- Guest, D. (2002). Human Resource Management, Corporate Performance and Employee Wellbeing: Building the Worker into HRM. Journal of Industrial Relations, 44(3), 335–358.

- <https://doi.org/10.1111/1472-9296.00053>
- Holman, D. (2002). Employee wellbeing in call centres. *Human Resource Management Journal*, 12(4), 35–50. <https://doi.org/10.1111/j.1748-8583.2002.tb00076.x>
- Huo, M.-L., Boxall, P., & Cheung, G. W. (2022). Lean production, work intensification and employee wellbeing: Can line-manager support make a difference? *Economic and Industrial Democracy*, 43(1), 198–220. <https://doi.org/10.1177/0143831X19890678>
- Jain, A. K., Giga, S. I., & Cooper, C. L. (2009). Employee wellbeing, control and organizational commitment. *Leadership & Organization Development Journal*, 30(3), 256–273. <https://doi.org/10.1108/01437730910949535>
- Kobayashi, K., Eweje, G., & Tappin, D. (2018). Employee wellbeing and human sustainability: Perspectives of managers in large Japanese corporations. *Business Strategy and the Environment*, 27(7), 801–810. <https://doi.org/10.1002/bse.2032>
- Manupadu, V., & Prasad, S. (2017). Development of an Extended Measure of Work-Life Balance: An Empirical Study with Reference to IT Industry. *AIMS International Journal of Management*, 11(3), 187. <https://doi.org/10.26573/2017.11.3.3>
- Nijp, H. H., Beckers, D. G., Geurts, S. A., Tucker, P., & Kompier, M. A. (2012). Systematic review on the association between employee worktime control and work–non-work balance, health and well-being, and job-related outcomes. *Scandinavian Journal of Work, Environment & Health*, 38(4), 299–313. <https://doi.org/10.5271/sjweh.3307>
- Prasad, K., & Satyaprasad, V. (2023). The Relationship between Remote Working and Work-life Balance with Mediating and Moderating Effects of Social Support: An Empirical Study of Information Technology Employees. *International Journal of Organizational Leadership*, 0(0), 235–253. <https://doi.org/10.33844/ijol.2023.60366>