

People Analytics in HRM: A Bibliometric Study

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ABSTRACT

This study examines the development and intellectual structure of people analytics within human resource management using a bibliometric approach. Drawing on data from a selected academic database, the analysis maps publication trends, influential sources, and the relationships among key concepts through co-occurrence, network, overlay, and density visualizations. The findings identify people analytics as the central construct that connects technological domains such as artificial intelligence, machine learning, and predictive analytics with strategic HR practices, including talent management and decision making. The results reveal an evolutionary trajectory in which early studies focused on data infrastructure and workforce analytics, followed by a phase of integration into HR functions, and more recent work emphasizing predictive and decision-oriented applications. Despite this progress, the field remains partially fragmented, with limited integration between analytical techniques and strategic HR outcomes. This study contributes by clarifying the intellectual landscape of people analytics and highlighting opportunities for future research to develop more integrative and theory-informed approaches that link analytics capabilities with organizational value creation.

Keywords: People Analytics, Human Resource Management, HR Analytics, Bibliometric Analysis, VOSViewer

1. INTRODUCTION

In recent years, the rapid advancement of digital technologies and the increasing availability of organizational data have transformed the way human resource management (HRM) operates. Traditional HR practices, which often relied on intuition and subjective judgment, are gradually being replaced by data-driven approaches. One of the most prominent developments in this transformation is the emergence of people analytics. People analytics refers to the systematic use of data, statistical analysis, and predictive modeling to understand, manage, and improve workforce performance. This shift reflects a broader trend in organizations toward evidence-based decision-making, where data plays a central role in shaping strategies and outcomes [1].

The growing importance of people analytics is closely linked to the strategic role of human resources in organizations. HR is no longer viewed merely as an administrative function but as a critical partner in achieving organizational goals. By leveraging people analytics, HR professionals can gain insights into employee behavior, engagement, productivity, and retention. These insights enable organizations to make informed decisions about talent acquisition, development, and workforce planning. Furthermore, people analytics supports the alignment of HR practices with organizational objectives, thereby enhancing overall performance and competitiveness [2]. Despite its potential benefits, the adoption of people analytics is not without challenges. Many organizations struggle with issues such as data quality, integration of disparate data sources, and lack of analytical capabilities. Additionally, ethical concerns related to employee privacy and data security have become increasingly significant. These challenges highlight the need for a deeper understanding of how people analytics is being developed and applied in HRM. As a relatively new and evolving field, people analytics requires systematic investigation to identify its key themes, trends, and gaps in the existing literature [3].

Bibliometric analysis offers a valuable approach to examining the development of research in people analytics within HRM. By analyzing patterns in academic publications, such as authorship,

citation networks, and keyword co-occurrence, bibliometric studies provide insights into the intellectual structure of a research field. This method allows researchers to identify influential works, emerging topics, and collaboration networks. In the context of people analytics, a bibliometric study can help map the evolution of the field and highlight areas that require further exploration [4]. Given the increasing interest in people analytics and its implications for HRM, there is a need to systematically review and synthesize the existing body of knowledge. While previous studies have explored various aspects of people analytics, there is limited comprehensive analysis of the research landscape as a whole. A bibliometric study can address this gap by providing an overview of the field's development, identifying key contributors, and uncovering research trends. Such an analysis not only contributes to academic knowledge but also offers practical insights for HR professionals seeking to implement people analytics effectively.

Although people analytics has gained significant attention in both academic and practical contexts, the existing literature remains fragmented and lacks a comprehensive synthesis of its development within HRM. There is limited understanding of the key research themes, influential publications, and collaborative networks that shape this field. Furthermore, the rapid growth of publications on people analytics makes it challenging for researchers and practitioners to keep track of emerging trends and identify research gaps. This lack of a structured overview hinders the advancement of knowledge and the effective application of people analytics in organizational settings. The objective of this study is to conduct a bibliometric analysis of the literature on people analytics in human resource management.

2. METHODS

This study employs a bibliometric research design to systematically analyze the development of literature on people analytics in human resource management. Bibliometric analysis is a quantitative method used to evaluate academic publications through statistical and mathematical techniques, enabling the identification of patterns, trends, and relationships within a specific research field [4]. The study adopts a descriptive and evaluative approach, focusing on publication outputs, citation structures, and keyword relationships. This approach is appropriate for mapping the intellectual structure and evolution of people analytics research, as well as identifying influential contributions and emerging themes.

The data for this study are collected from a reputable academic database, such as Scopus or Web of Science, which provides comprehensive coverage of peer-reviewed journals. Relevant publications are identified using specific keywords, including "people analytics," "HR analytics," "workforce analytics," and "human resource analytics." Inclusion criteria are applied to ensure the relevance and quality of the data, such as limiting the search to journal articles, conference papers, and reviews published in English within a defined time frame. After the initial search, duplicate records and irrelevant documents are removed through a screening process, resulting in a refined dataset for analysis.

3. RESULT AND DISCUSSION

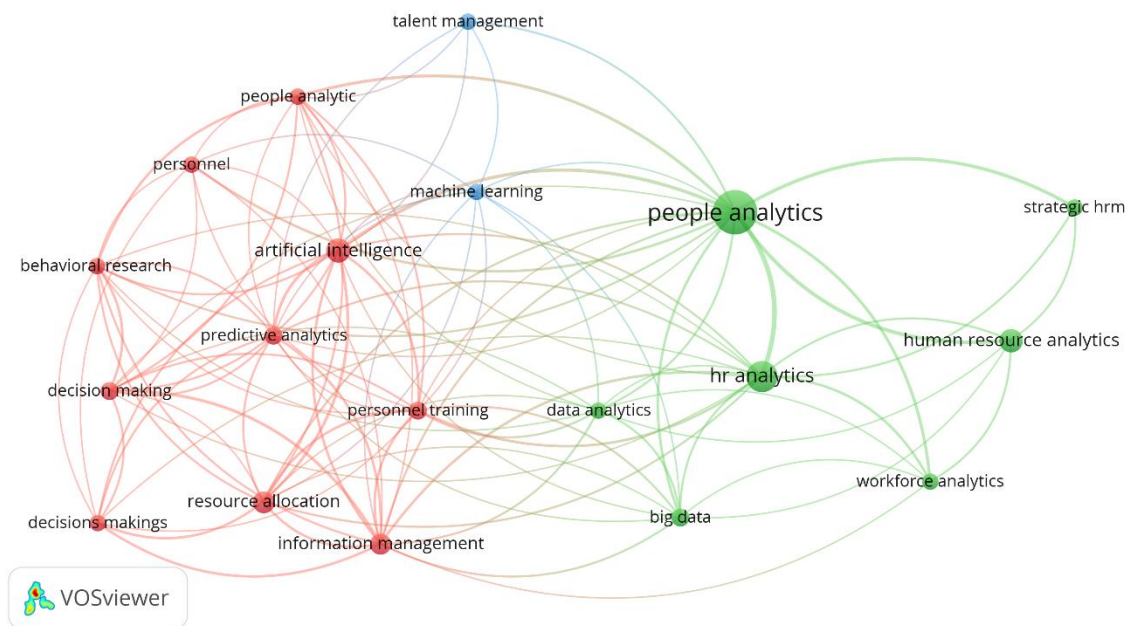


Figure 1. Network Visualization

Source: Data Analysis Result, 2026

Figure 1 reveals “people analytics” as the central and most influential node, indicating its role as the intellectual core of the field. Its strong connections with terms such as HR analytics, human resource analytics, and workforce analytics suggest that the literature is still conceptually clustered around HR-specific applications. This positioning shows that people analytics is not yet fully detached as an independent discipline, but rather continues to evolve within the broader domain of human resource management, particularly in strategic HRM contexts. The green cluster represents a structurally cohesive stream focused on the integration of analytics within HR functions. Keywords such as big data, data analytics, and strategic HRM indicate that this cluster emphasizes the strategic and organizational value of analytics. The presence of strong links among these terms suggests a growing alignment between people analytics and strategic decision-making, where HR is increasingly positioned as a data-driven partner in organizational performance rather than a purely administrative function.

In contrast, the red cluster reflects a more technical and operational orientation. Terms such as artificial intelligence, predictive analytics, decision making, and resource allocation highlight the analytical and computational foundations of people analytics. This cluster suggests that a significant portion of the literature is driven by technological advancements, focusing on how algorithms and predictive models can support HR-related decisions. The density of connections within this cluster also indicates that these topics are frequently studied together, forming a tightly integrated research stream. The blue cluster, although smaller, plays a bridging role between technical and HR-oriented discussions. Keywords such as machine learning and talent management indicate an emerging intersection where advanced analytical techniques are applied to specific HR practices. This suggests a transition phase in the literature, where methodological sophistication (e.g., machine learning) begins to be embedded into core HR functions like talent development and retention, signaling a shift from general analytics to more application-specific insights.

The network structure reflects a dual trajectory in the development of people analytics research. On one side, there is a strong technological push driven by AI and predictive modeling,

while on the other, there is a strategic HR orientation focusing on value creation and organizational outcomes. The relatively weaker integration between these clusters suggests that the field is still fragmented, with opportunities for future research to better connect technical capabilities with strategic HR implications. This gap opens space for studies that move beyond descriptive or tool-based approaches and instead develop integrative frameworks linking analytics, decision quality, and organizational performance.

3.1 Overlay Visualization

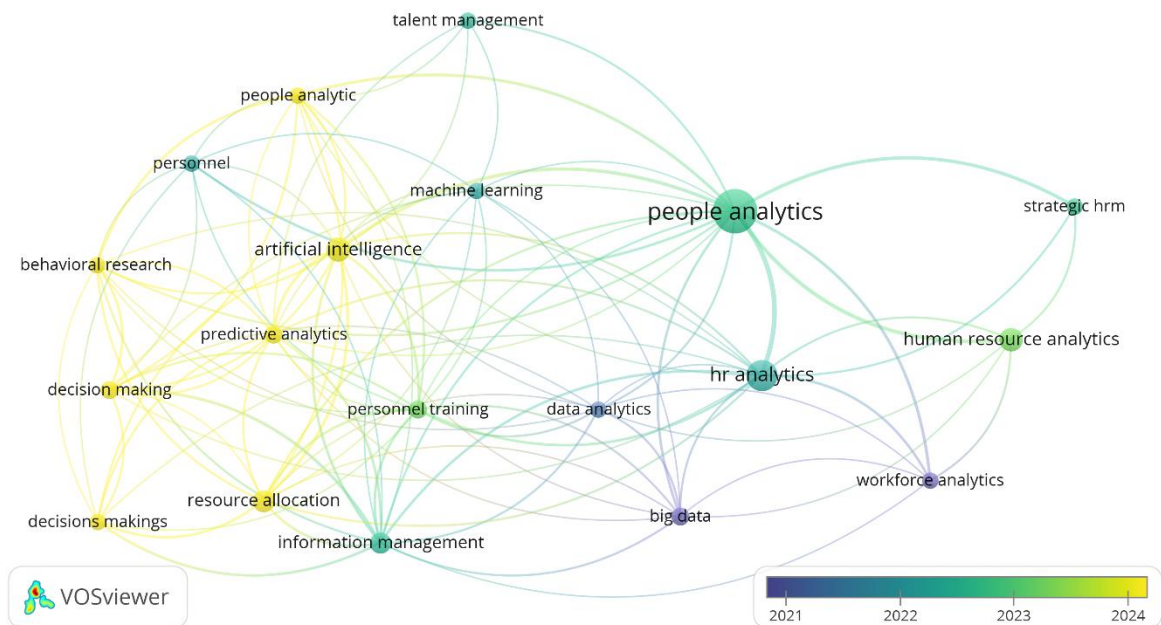


Figure 2. Overlay Visualization

Source: Data Analysis Result, 2026

Figure 2 shows the temporal evolution of research on people analytics, where color gradients indicate the average publication year of each keyword. Earlier studies (blue to purple tones, around 2021) are concentrated on foundational concepts such as big data, workforce analytics, and HR analytics. These terms reflect the initial phase of the field, where the focus was on building data infrastructure and introducing analytics into HR practices. At this stage, research was largely concerned with data availability, system integration, and the technical feasibility of applying analytics in workforce contexts.

As the field progresses (green tones, around 2022–2023), the focus shifts toward integration and application within HRM functions. Keywords such as people analytics, data analytics, machine learning, and talent management become more prominent, indicating a transition from purely technical discussions to more applied and organizationally embedded perspectives. This phase suggests that researchers began to explore how analytical tools can support HR decision-making processes, particularly in areas like talent development, performance management, and strategic workforce planning.

More recent developments (yellow tones, around 2023–2024) highlight a growing emphasis on advanced analytics and decision-oriented outcomes. Terms such as artificial intelligence, predictive analytics, decision making, and resource allocation dominate this stage, reflecting a shift toward leveraging analytics for predictive and prescriptive purposes. This evolution indicates that the field is moving beyond descriptive insights toward more sophisticated, forward-looking applications that directly influence organizational decisions. At the same time, the spread of these

newer topics across the network suggests increasing convergence between technological capabilities and strategic HR concerns, although opportunities remain to further integrate these domains into a more cohesive research framework.

3.2 Citation Analysis

Table 1. The Most Impactful Literatures

Citations	Authors and year	Title
188	[5]	The rise (and fall?) of HR analytics: A study into the future application, value, structure, and system support
178	[6]	People analytics – A scoping review of conceptual boundaries and value propositions
136	[7]	Examining the determinants of successful adoption of data analytics in human resource management – A framework for implications
88	[8]	21st century HR: a competency model for the emerging role of HR Analysts
60	[9]	HR Analytics and Artificial Intelligence-Transforming Human Resource Management
55	[10]	HR analytics: An emerging field finding its place in the world alongside simmering ethical challenges
48	[11]	Exploring the Evolution of Human Resource Analytics: A Bibliometric Study
46	[12]	People management issues in Indian KPOs
44	[13]	Mining people analytics from stackoverflow job advertisements
36	[14]	Insider econometrics meets people analytics and strategic human resource management

Source: Scopus, 2026

3.3 Density Visualization

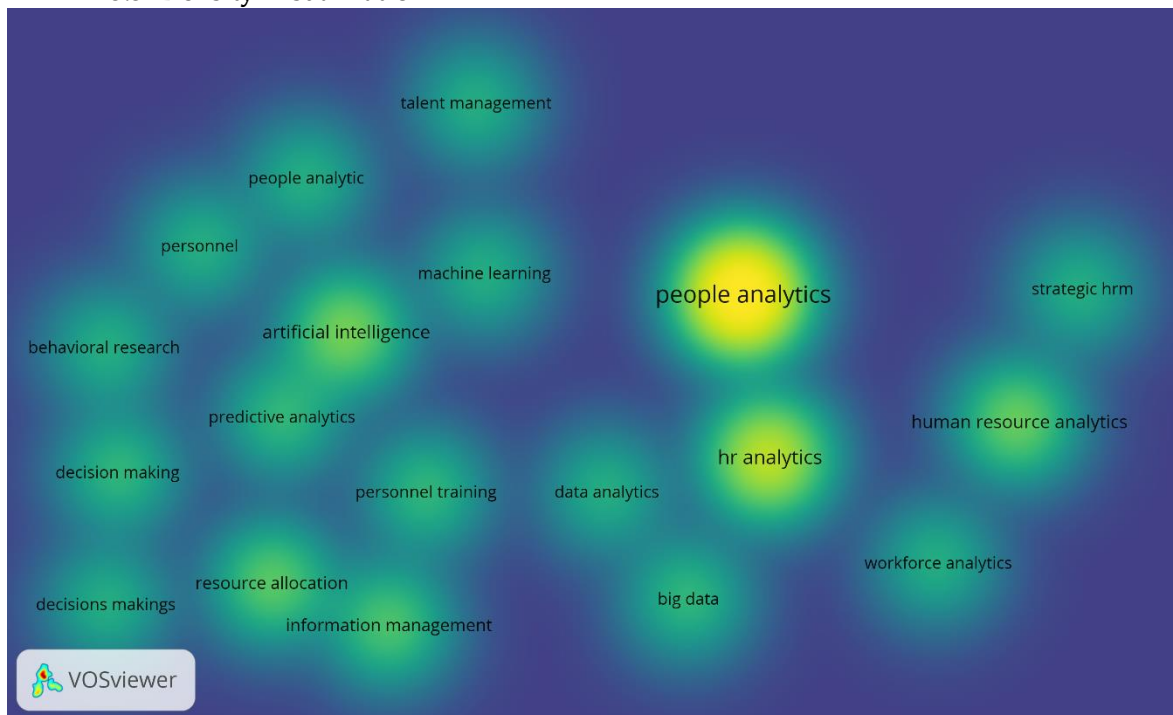


Figure 3. Density Visualization

Source: Data Analysis Result, 2026

Figure 3 highlights “people analytics” as the most prominent and intensively studied concept, indicated by the brightest (yellow) area at the center of the map. This suggests that the term has the highest frequency and strongest co-occurrence with other keywords, reinforcing its position as the core of the research domain. Closely surrounding it are HR analytics, human resource analytics, and strategic HRM, which appear in relatively high-density zones, indicating that much of the literature remains anchored in HR-specific applications and strategic organizational contexts. This pattern confirms that people analytics is still strongly embedded within the HRM discipline rather than functioning as a fully independent field.

Beyond the central core, the density gradually decreases toward surrounding areas that include artificial intelligence, machine learning, predictive analytics, and decision making. Although these terms are less dense, their presence in moderately bright zones indicates growing attention and integration into the field. At the same time, more peripheral terms such as resource allocation, behavioral research, and information management appear in lower-density areas, suggesting they are less frequently explored or remain niche topics.

Discussion

The findings of this bibliometric study position people analytics as a central and consolidating concept within the broader domain of human resource management. Across the network, overlay, and density visualizations, people analytics consistently emerges as the most dominant node, indicating both high frequency and strong relational ties with other constructs. This pattern suggests that the field has reached a stage where a shared conceptual core is forming, anchored in HR analytics, workforce analytics, and strategic HRM. Rather than being fragmented, the literature shows signs of convergence, with scholars increasingly aligning around people analytics as a unifying lens for understanding data-driven HR practices.

At the same time, the cluster structure reveals a dual orientation in the development of the field. On one side, there is a strong technological stream driven by artificial intelligence, predictive analytics, and machine learning, emphasizing the analytical capabilities and computational tools that enable people analytics. On the other side, there is a managerial and strategic stream, where analytics is positioned as a mechanism to enhance decision making, talent management, and organizational performance. The coexistence of these two streams reflects an ongoing negotiation between technology and management, where the value of analytics is not only derived from technical sophistication but also from its ability to inform and shape HR strategies.

The temporal analysis further highlights a clear evolutionary trajectory. Early research focused on foundational elements such as big data and workforce analytics, reflecting initial efforts to build data infrastructure and integrate analytics into HR systems. This phase gradually transitioned into a more application-oriented stage, where attention shifted toward embedding analytics within HR functions such as talent management and performance evaluation. More recent developments indicate a growing emphasis on predictive and prescriptive approaches, particularly through the integration of artificial intelligence. This progression suggests that the field is moving beyond descriptive analytics toward more forward-looking and decision-oriented applications.

Despite this progress, the findings also point to a degree of fragmentation between technological advancements and strategic HR applications. While advanced analytical techniques are increasingly discussed, their integration into core HR decision-making processes appears uneven. The network structure shows that links between technical keywords and strategic HR concepts, although present, are not yet fully dense. This indicates that the field still lacks a cohesive framework that effectively bridges analytical capabilities with organizational outcomes. As a result, there is a need for research that moves beyond tool-centric approaches and instead develops integrative models that connect analytics, decision quality, and value creation in HRM.

Building on these insights, future research should focus on strengthening the interface between technology and strategy in people analytics. This includes exploring how analytical outputs are translated into actionable HR decisions, how organizations build analytical capabilities within

HR functions, and how ethical considerations are addressed in data-driven people management. In addition, there is room to expand the scope of the field by incorporating behavioral and contextual perspectives, which remain relatively underexplored in the current literature. By advancing these directions, future studies can contribute to a more mature and coherent understanding of people analytics as both a technological and strategic domain within human resource management.

CONCLUSION

This study provides a comprehensive mapping of the development and intellectual structure of people analytics within human resource management through a bibliometric approach. The findings highlight people analytics as the central concept that integrates both technological advancements and strategic HR practices, reflecting a growing shift toward data-driven decision-making in organizations. The evolution of the field shows a clear transition from foundational data infrastructure toward more advanced, predictive, and decision-oriented applications, particularly with the increasing role of artificial intelligence and machine learning. However, the analysis also reveals that the integration between analytical capabilities and strategic HR outcomes remains uneven, indicating the need for more cohesive and theory-driven frameworks.

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