

Human resource information systems research in transition: A global bibliometric mapping of knowledge, collaboration, and future direction

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Abstract

This study aims to provide a comprehensive overview of the intellectual and thematic evolution of human resource information systems (HRIS) research within the context of digital transformation. Despite its growing strategic importance, HRIS literature remains fragmented across theoretical, methodological, and geographical dimensions. This study seeks to map the structural dynamics, emerging themes, and future research trajectories shaping the field. A bibliometric and science mapping approach was employed using data extracted from 303 peer-reviewed articles (1990–2025) indexed in the Scopus database. The analysis utilized VOSviewer and Biblioshiny (R Bibliometrix) to examine publication performance, co-authorship networks, citation patterns, and keyword co-occurrences, offering an evidence-based assessment of the intellectual landscape of HRIS research. Results reveal the transition of HRIS from a technology-centric system to a strategic and human-centered digital capability, emphasizing themes such as digital transformation, HR analytics, employee trust, and organizational agility. The study identifies key theoretical clusters, influential authors, and global collaboration patterns while exposing persistent gaps related to conceptual integration, methodological diversity, and regional representation. The findings provide valuable insights for scholars, practitioners, and policymakers to strengthen theoretical coherence, promote interdisciplinary collaboration, and enhance HRIS-driven digital capability within organizations. This study is among the first to offer a global, longitudinal bibliometric synthesis of HRIS research, presenting an integrative framework that links technological innovation, strategic human resource management, and knowledge-based organizational development.

Introduction

In the contemporary digital era, human resource information systems (HRIS) have become an integral component of organizational management, serving as a technological infrastructure that integrates HR functions such as recruitment, performance appraisal, training, compensation, and decision-making into a unified system that supports data-driven decisions (Revillod, 2025; Marhraoui & El Manouar, 2020; Vadithe et al., 2025). Initially developed to improve administrative efficiency and record-keeping, HRIS has evolved into a strategic digital platform that enhances organizational agility, supports workforce analytics, and stimulates innovation in human capital management (Mishra & Jadeja, 2025). The growing reliance on digital technologies, big data, and artificial intelligence has further elevated HRIS from an operational tool to a key lever for strategic human resource management (SHRM) and organizational competitiveness (Kim et al., 2025). Nevertheless, despite its global diffusion, successful HRIS implementation depends not only on

technological capacity, but also on organizational readiness, digital culture, and human adaptability (Mauro & Borges-Andrade, 2020; Srivastava et al., 2021; Valcik et al., 2021a).

The trajectory of HRIS research reflects this transformation. Early studies in the 1990s and early 2000s emphasized system adoption, user satisfaction, and perceived ease of use (Joshi & Sengupta, 2025; Srivastava & Bajaj, 2022; Valcik et al., 2021b). Over the last decade, the focus has increasingly shifted toward digital transformation, HR analytics, and employee experience. Despite these advances, HRIS research continues to face challenges that reveal a deeper paradox in digital HR transformation: while technology promises efficiency and intelligence, it also generates new complexities related to human interaction, trust, and workplace culture. Many organizations still experience underutilization of HRIS, fragmented data integration, and resistance to digital change, particularly in contexts with limited digital literacy or cultural perceptions that are not aligned with technology adoption (Al Ruwaili, 2025). Some studies highlight positive effects on productivity and organizational agility (Bilgic, 2020), whereas others report dissatisfaction, low adoption rates, and reduced interpersonal engagement (Ben Moussa & El Arbi, 2020; Maier et al., 2013; Sithambaram & Tajudeen, 2023; Vilma & Booshnam, 2025). Even with advances in AI and predictive analytics, organizations often struggle to balance digital efficiency with employee well-being.

This empirical fragmentation also extends to theory. HRIS scholarship remains divided between technological and strategic perspectives that rarely converge. Dominant frameworks such as the technology acceptance model (TAM) (Meinert & Davis, 1989) and the unified theory of acceptance and use of technology (UTAUT) (Alkhwaldi et al., 2023; Hakim & Madyatmadja, 2023) primarily explain user adoption, while strategic perspectives such as the resource-based view and institutional theory are less frequently used to clarify how HRIS builds organizational capabilities and legitimacy. This gap limits a more holistic understanding of HRIS as both a technological system and an organizational capability.

From a global and disciplinary standpoint, HRIS research also shows uneven coverage and collaboration. Publications are still dominated by developed countries such as the United States and the United Kingdom, while contributions from developing regions including Southeast Asia and the Middle East have increased but remain underrepresented. Moreover, HRIS sits at the intersection of management and information systems, which has contributed to methodological fragmentation and limited theoretical integration. These imbalances reinforce the need for a systematic synthesis that consolidates fragmented findings and maps the intellectual evolution of HRIS research across time, regions, and theoretical traditions.

Overall, practical, empirical, theoretical, and geographic gaps indicate that HRIS scholarship remains uneven and fragmented. Although the field has grown over the past three decades, its intellectual evolution has not been mapped sufficiently, leaving open questions about how HRIS knowledge has developed and what trajectories will shape its future. The absence of a comprehensive synthesis not only constrains theory building, but also limits the ability of practitioners and policymakers to apply evidence-based insights to digital HR transformation.

To respond to this need, bibliometric analysis offers a rigorous and objective approach to consolidating dispersed knowledge and visualizing the structural dynamics of HRIS research. Unlike traditional reviews, bibliometric methods quantitatively assess scientific production, collaboration patterns, and thematic evolution across disciplines and geographies (Narendra Kiran et al., 2023). By integrating performance analysis and science mapping, this approach clarifies how HRIS research has evolved from operational systems into strategic, data-driven, and increasingly human-centered digital infrastructures. In this context, the present study explores the global intellectual landscape of HRIS to provide a comprehensive understanding of its development, dominant themes, and emerging research frontiers. By emphasizing the intersections among technology, people, and strategy, the study contributes to a more coherent view of HRIS as an academic field and a transformational force shaping the future of HR management in the digital era.

This study addresses four questions: (1) how HRIS research has evolved over time in publication trends, disciplinary focus, and intellectual influence; (2) what thematic clusters and conceptual linkages structure the field; (3) which countries most shape the global HRIS research network; and (4) which emerging themes and future research directions are indicated by thematic

evolution across regions and periods. By answering these questions, the study provides an evidence-based map of the HRIS knowledge ecosystem, clarifying how technology, human behavior, and organizational strategy intersect in digital HR transformation and supporting both theoretical consolidation and data-driven, human-centered HR strategy.

Methodology

Research design

This study employs a bibliometric science-mapping design to examine the intellectual structure and thematic evolution of human resource information systems (HRIS) research. The approach integrates performance analysis to describe publication growth, influential authors and sources, country productivity, and citation impact, alongside science mapping to reveal collaboration patterns and knowledge structures through co-authorship, co-citation, and co-word analyses.

Data source and search strategy

Data were retrieved from the Scopus database due to its multidisciplinary coverage and strong compatibility with bibliometric software. A structured query was executed in the TITLE–ABS–KEY fields using Boolean combinations of HRIS-related terms (e.g., “human resource information system”, “HRIS”, “e-HRM”, “electronic human resource management”, “digital HR”, “HR technology”, and “HR analytics”). To ensure comparability and methodological consistency, the search was limited to English-language publications from 1989 to 2025 and restricted to peer-reviewed journal articles.

Eligibility criteria

Eligibility criteria were defined a priori. Studies were included when HRIS/e-HRM/digital HR constituted the primary analytical focus. Records were excluded when HR was discussed without a substantive technology component, when information systems research was outside HR contexts, when the document type was not a journal article (e.g., editorials, notes, book chapters), or when language and timespan requirements were not met.

Study selection (PRISMA procedure)

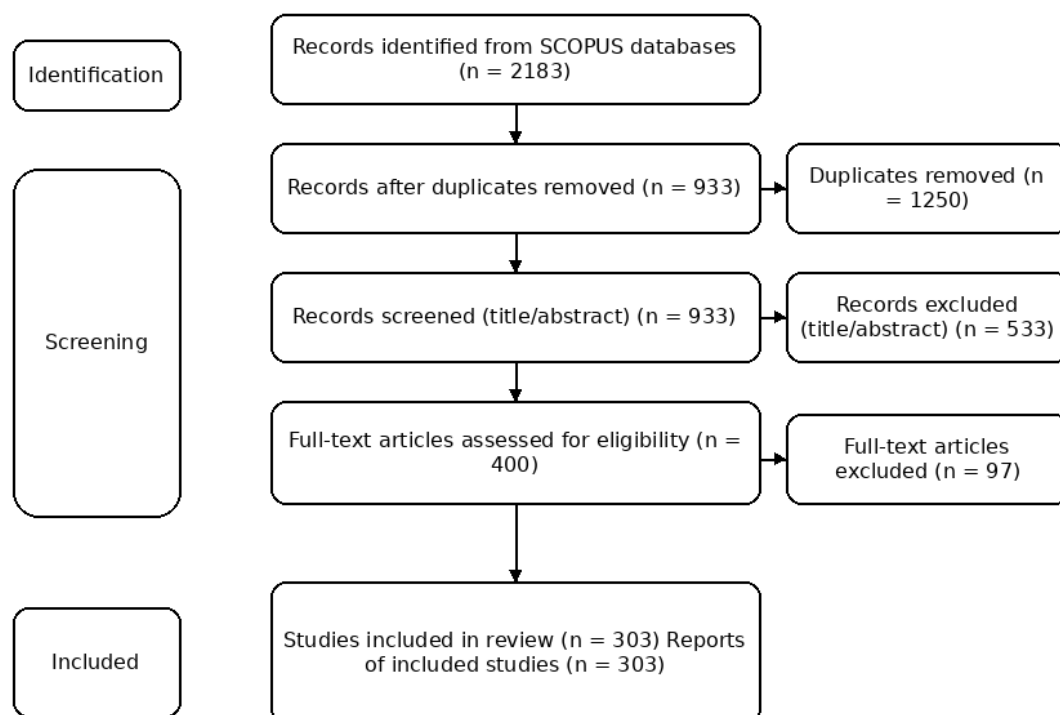


Figure 1. Prisma Flow

A PRISMA-style selection procedure was applied (Figure 1). The initial search identified 2,183 records. Duplicate removal was conducted using DOI matching and, where necessary, title–year–first-author matching, eliminating 1,250 records and yielding 933 unique documents for title and abstract screening. This stage excluded 533 records primarily because HRIS terminology was peripheral or the study fell outside the HRIS domain. Full-text assessment was then conducted on 400 articles, resulting in 97 further exclusions based on the predefined eligibility criteria. The final corpus comprised 303 articles.

Analytical procedures

The bibliometric analysis was performed using VOSviewer and Biblioshiny (the R-based interface of the Bibliometrix package). These tools enabled both performance analysis and science mapping. Performance analysis examined publication trends, authorship patterns, country productivity, and source impact to quantify the field's growth and influence (Donthu et al., 2021). Science mapping explored the structural and conceptual linkages within HRIS research through co-authorship networks (collaboration patterns), co-citation analysis (intellectual foundations), and co-word analysis (conceptual structures and thematic evolution) (van Eck & Waltman, 2010).

VOSviewer facilitated the visualization of network relationships among authors, institutions, and keywords, highlighting intellectual and thematic clusters in HRIS research. Meanwhile, Biblioshiny was used to generate thematic maps, trend topic charts, and treemaps, which provided insights into the evolution of HRIS themes over time. The qualitative interpretation of these visual outputs allowed the identification of research hotspots, emerging themes (e.g., digital transformation, AI in HR, HR analytics), and shifting paradigms in HRIS studies.

Results & Discussion

The bibliometric results show that research on human resource information systems (HRIS) and digital transformation has grown steadily from 1989 to 2025, with a total of 303 documents published across 160 academic sources. The annual growth rate of 6.12% indicates continuous development, particularly in recent years as digitalization in HR has accelerated. The documents have an average age of 7.95 years and receive about 30.24 citations per article, suggesting that the field remains relatively new yet academically influential. The dataset includes 2,183 references, reflecting a broad and well established research base. There are 933 author keywords and 237 Keywords Plus, demonstrating a wide range of research themes such as e-HRM, HR analytics, digital transformation, and artificial intelligence in HR.

A total of 827 authors contributed to these studies, with no single-authored papers, highlighting strong collaboration among researchers. On average, each paper has 5.18 co-authors, and 22.44% involve international collaboration, underscoring the global and multidisciplinary nature of HRIS research. All documents are journal articles, confirming that academic research on HRIS and digital transformation is primarily published in peer-reviewed journals. Overall, the data indicate that HRIS research is an emerging and collaborative field with growing academic impact worldwide.

Table 1 illustrates the yearly number of academic publications related to human resource information systems (HRIS) from 1989 to 2025. Overall, the figure demonstrates a clear upward trend, indicating that research on HRIS has gained increasing academic attention over the years. Between 1989 and the early 2000s, the number of publications remained very low, with only a few studies recorded each year. This suggests that HRIS was still a relatively underexplored topic within the academic community during that period. Starting from the mid2000s, the number of publications began to rise gradually, reflecting growing scholarly interest and wider recognition of HRIS as a relevant area of study. A more substantial increase is visible after 2010, when publication frequency became more consistent, with noticeable fluctuations in some years. The most significant spike occurred around 2018–2023, when annual scientific production reached its highest level, exceeding 30 published articles. This pattern indicates a strong expansion of research output and possibly the maturation of HRIS as an established research domain. Although there appears to be a slight decline after 2023, this may not necessarily indicate reduced research activity but could

instead be attributed to database indexing delays, as recent publications are often not yet fully recorded in citation databases such as Scopus.

Table 1. Data Sources

<i>Main Information about Data</i>	
Timespan	1989:2025
Sources (journals, books, etc)	160
Documents	303
Annual growth rate %	6.12
Document average age	7.95
Average citations per doc	30.24
References	2,183
<i>Document Contents</i>	
Keywords plus (ID)	237
Author's keywords (DE)	933
<i>Authors</i>	
Authors	827
Authors of single-authored docs	0
<i>Authors Collaboration</i>	
Single-authored docs	0
Co-Authors per doc	5.18
International co-authorships %	22.44
<i>Document Types</i>	
Article	303

Table 2. Most Prominent Contributions to HRIS Research

Rank	Author(s) - Year	Article Title	Journal Title	Total Citations	TCPY
1	Marler & Boudreau (2017)	An Evidence-Based Review of HR Analytics	International Journal of Human Resource Management	510	51
2	Strohmeier (2007)	Research in e-HRM: Review and Implications	Human Resource Management Review	391	19,55
3	Stone et al. (2015)	The Influence of Technology on the Future of Human Resource Management	Human Resource Management Review	379	31,58
4	Dries (2013)	The Psychology of Talent Management: A Review and Research Agenda	Human Resource Management Review	369	26,36
5	Bondarouk, Parry & Furtmueller (2017)	Electronic HRM: Four Decades of Research on Adoption and Consequences	International Journal of Human Resource Management	257	25,7
6	Bondarouk & Brewster (2016)	Conceptualising the Future of HRM and Technology Research	International Journal of Human Resource Management	227	20,64
7	Arslan et al. (2022)	Artificial Intelligence and Human Workers Interaction at Work	International Journal of Manpower	209	41,8
8	Votto et al. (2021)	Artificial Intelligence in Tactical Human Resource Management	International Journal of Information Management	204	34
9	Marler & Parry (2016)	Human Resource Management, Strategic Involvement and e-HRM Technology	International Journal of Human Resource Management	192	17,45
10	Parry & Tyson (2011)	Desired Goals and Actual Outcomes of e-HRM	Human Resource Management Journal	182	11,38

Table 2 identifies the publications that structure the field's intellectual core using total citations (cumulative influence) and TCPY (citation velocity). Influence is highly concentrated in a

small set of anchor works rather than dispersed across the literature. Marler and Boudreau (2017) lead in citations (510), indicating that HR analytics and data-driven capability building have become a central orientation in HRIS scholarship. Highly cited review articles such as Strohmeier (2007) and Stone et al. (2015) (both in *Human Resource Management Review*) show the field's reliance on synthesis to consolidate concepts and agendas, while newer AI-focused studies (e.g., Arslan et al., 2022; Votto et al., 2021) exhibit high TCPY, signalling a fast-growing frontier around AI and work automation.

Publication trends and temporal growth

The analysis of publication trends serves as a foundational step in understanding the intellectual evolution and research dynamics of a scientific field over time. In this study, tracking the temporal growth of human resource information systems (HRIS) literature provides valuable insights into how scholarly attention toward HRIS has shifted in response to technological advancements and changing organizational needs.

Figure 2 demonstrates a significant upward trend over the past three decades. From 1989 to approximately 2005, the number of publications remained relatively low and sporadic, reflecting the early exploratory phase of HRIS research. A noticeable growth emerged after 2007, coinciding with the rise of digital HR tools and analytics. The most substantial increase occurred between 2018 and 2024, where annual publications exceeded 30 articles, indicating heightened scholarly interest driven by digital transformation, data-driven HR practices, and post-pandemic shifts toward technology-enabled human resource systems.

The trend topics analysis (Figure 3) illustrates the thematic evolution of HRIS research from 2004 to 2025. Early studies predominantly emphasized operational aspects of HRIS, focusing on information systems, e-recruitment, and administrative automation. Between 2011 and 2017, the literature shifted toward strategic applications such as e-HRM, talent management, and HRM effectiveness, reflecting an increased interest in aligning HRIS with organizational performance. In recent years (2018–2025), the dominant themes have revolved around digital transformation, artificial intelligence, trust, and employee performance, highlighting the transition of HRIS from a technology-centered tool to a human-centered strategic capability that supports digital agility and employee empowerment.

Between 2010 and 2016, new themes began to emerge, particularly “e-HRM,” “electronic human resource management,” and “HRIS.” These terms marked the digitalization phase of HRM, where scholars started emphasizing the transformation of traditional HR processes into technology-based systems. During this period, concepts such as “HRM effectiveness,” “information technology,” and “organizational performance” also became central, highlighting the role of HRIS in improving operational efficiency and strategic HR alignment (Irum & Yadav, 2019).

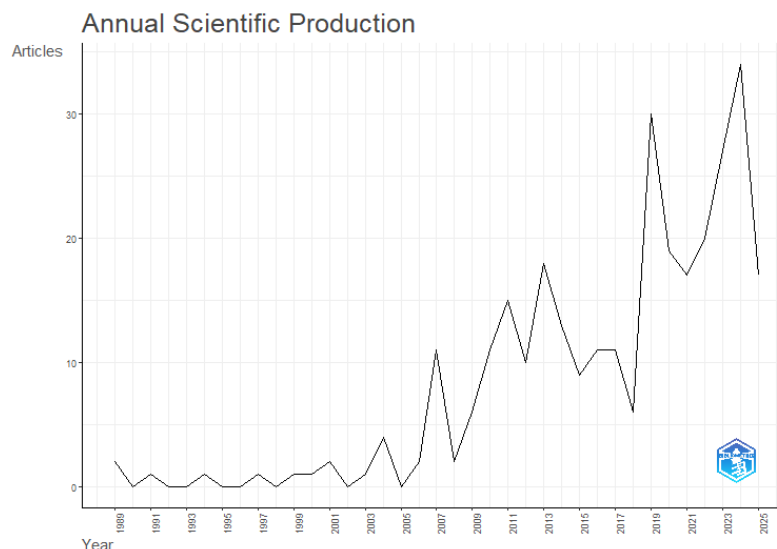


Figure 2. Annual Scientific Production

The most recent years (2018–2024) show a notable diversification and modernization of research themes. Keywords such as “digital transformation,” “artificial intelligence,” “employee performance,” “trust,” and “job satisfaction” indicate that HRIS research is increasingly intersecting with broader technological and behavioral domains. The presence of terms like “talent management,” “strategic HRM,” and “social media” reflects a shift toward understanding HRIS as a strategic enabler that influences workforce engagement, decision-making, and digital leadership.

The large circles around “e-HRM,” “electronic HRM,” and “HRIS” confirm that these remain the core and most frequently discussed topics in the literature, forming the backbone of HR technology research. Meanwhile, emerging keywords such as “AI” and “digital transformation” suggest that the field is evolving toward a new research frontier, focusing on automation, data analytics, and intelligent decision systems in HR management.

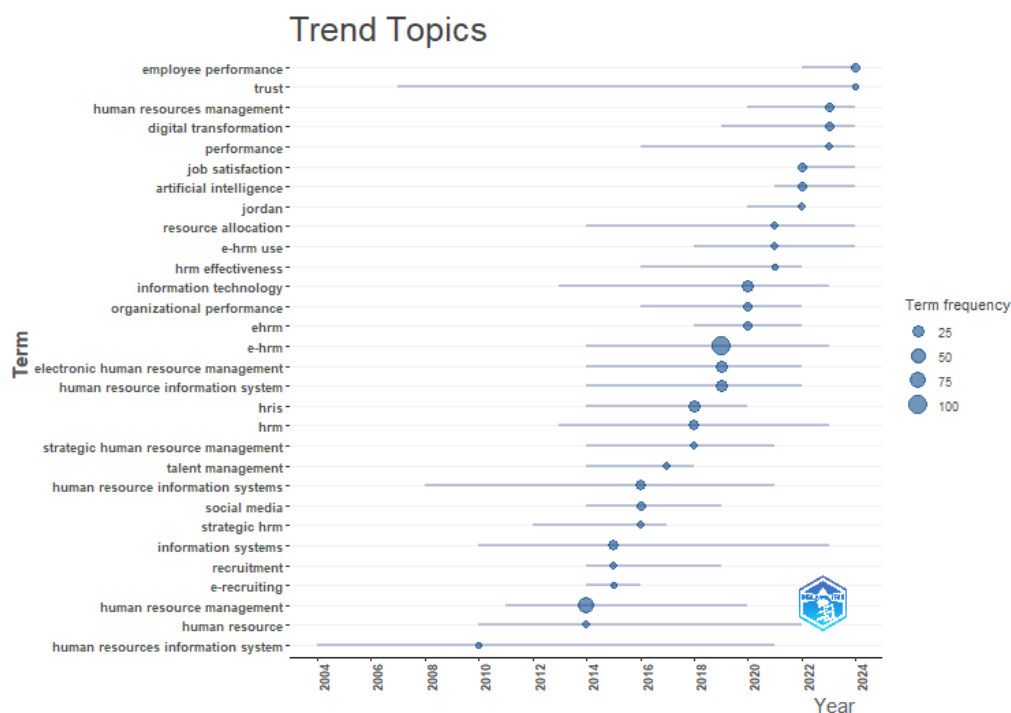


Figure 3. Trend Topic

HRIS research has transitioned from a system-oriented phase (focused on development and adoption) (Gupta & Mittal, 2025; Mohapatra & Samaddar, 2020; Scupola & Pullich, 2020; Srivastava & Bajaj, 2022; Teo et al., 2007; Tiwari et al., 2022) to a strategic and digital phase (centered on transformation, analytics, and employee outcomes) (Irum & Yadav, 2019; Kakkar & Kaushik, 2019; Kim et al., 2025; Kovach & Cathcart, 1999; Marler & Fisher, 2013; Tansley & Watson, 2000; Udekwe et al., 2023). This trend highlights the increasing importance of HRIS not only as an administrative tool but also as a strategic digital infrastructure that drives organizational performance and innovation in the era of digital work.

Geographical distribution and research productivity

Exploring the geographical distribution of publications is a key step in identifying the main locations where academic interest and research capacity related to HRIS are concentrated. The analysis of publication distribution shows that research on human resource information systems (HRIS) is not evenly spread across countries, but is concentrated in several specific regions, as shown in Figure 4. Based on publication data, India (Bhatnagar, 2007, 2008; Gupta & Mittal, 2025; Nair, 2018; Saravanan & Vasumathi, 2016; Srivastava & Bagga, 2014) ranks first with the highest number of articles (100 documents), making it the most dominant contributor to HRIS research. The rapid growth of India’s research output in recent years can be associated with the acceleration of digital transformation, the expansion of the technology sector, and increasing academic attention

toward the digitalization of HR functions in South Asia. Following India, Malaysia (61 publications) (Davarpanah & Mohamed, 2020; Ibrahim et al., 2017; Sithambaram & Tajudeen, 2023) and the United Kingdom (52 publications) occupy the next positions, indicating that Southeast Asia and Western Europe also contribute significantly to HRIS scholarship. The United States (48 publications), although not the highest in publication volume, remains an influential actor in the field due to the high citation impact of its academic output.

Other countries such as Jordan (Aldmour, 2020; Aldmour & Love, 2015), the Netherlands, Indonesia (Estradha et al., 2025), and Germany also appear among the most productive, each contributing more than 30 publications. These findings illustrate that HRIS research is relatively more developed in Asia and Europe, whereas countries in Africa and Latin America generally show lower levels of publication. This pattern reinforces the existence of a global research imbalance, where only a limited number of countries actively and consistently contribute to the advancement of HRIS theory and practice. Accordingly, future research opportunities remain open for underrepresented regions, whether through independent scholarship or international collaboration.

Country Scientific Production

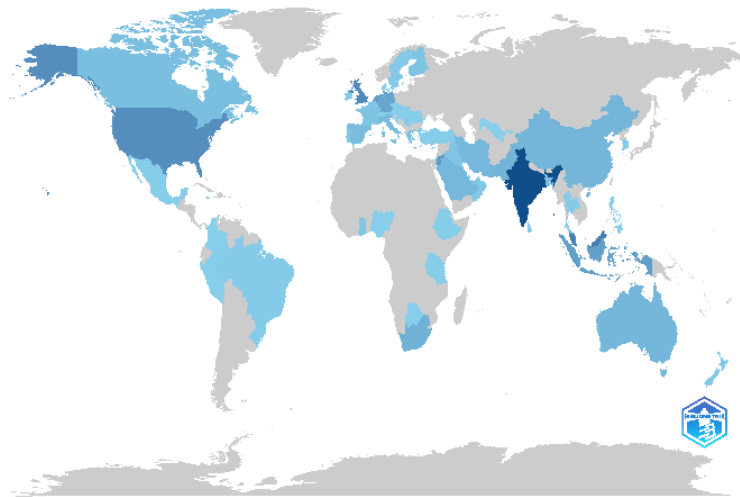


Figure 4. Country Scientific Production

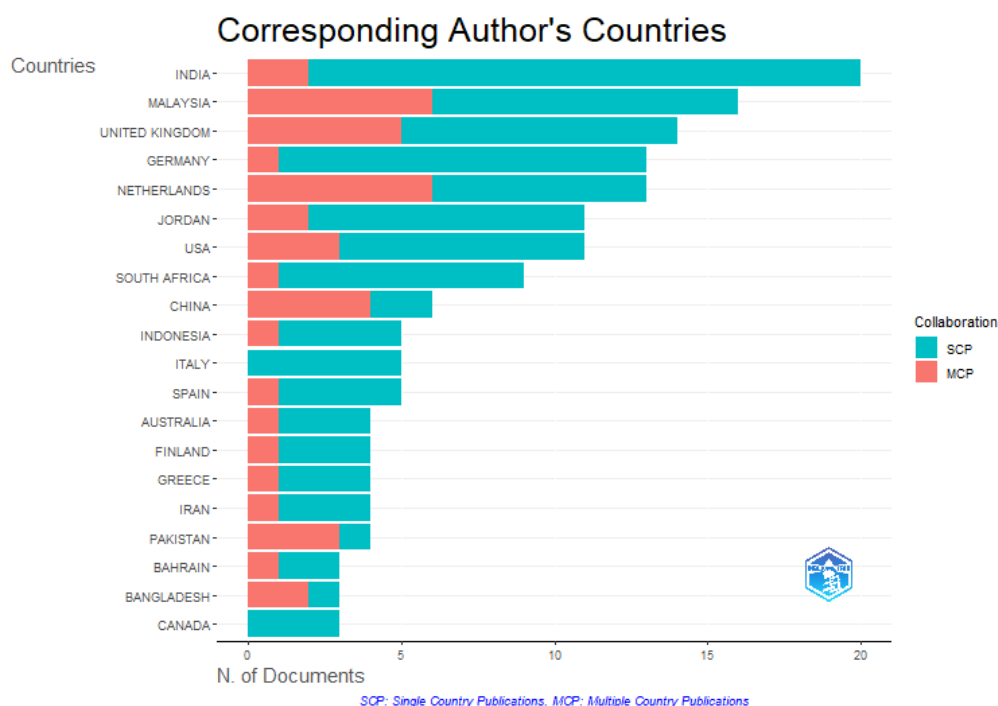


Figure 5. Corresponding Author's Country

In addition to examining the geographical distribution of publication productivity, it is also important to understand the patterns of scientific collaboration in HRIS research. This aspect can be observed through the distribution of corresponding authors based on publication type, as illustrated in Figure 5. The figure compares single-country publications (SCP) and multiple-country publications (MCP), indicating whether an article is authored within a single country or through international collaboration. The visualization shows that although India is the most productive country in terms of publication volume, its output is dominated by single-country publications, suggesting a strong domestic research base but relatively limited international collaboration. In contrast, countries such as the United Kingdom, the Netherlands, and Germany display a higher proportion of MCPs, reflecting a more collaborative research culture and stronger integration within global scientific networks. Meanwhile, countries like Malaysia, the United States, and Jordan demonstrate a more balanced composition between individual and collaborative publications, indicating that HRIS research in these countries develops both internally and through cross-national cooperation. These findings suggest that international collaboration not only expands scholarly networks but also tends to increase research visibility and citation impact.

In addition to comparing Single-country publications (SCP) and multiple-country publications (MCP), the analysis of research collaboration is further illustrated through the international co-authorship network map, as shown in Figure 6. This collaboration map visualizes the connections between countries based on joint publications, where each line represents a co-authorship link, and its thickness reflects the frequency and strength of collaboration. The visualization reveals that several countries, including the United Kingdom, India, and Malaysia, function as central nodes within the global HRIS research network, linking multiple regions such as Western Europe, South Asia, North America, and Australia. The United Kingdom, for example, appears as a major hub of cross-continental collaboration, while India and Malaysia play a key role in forming regional research clusters within Asia.

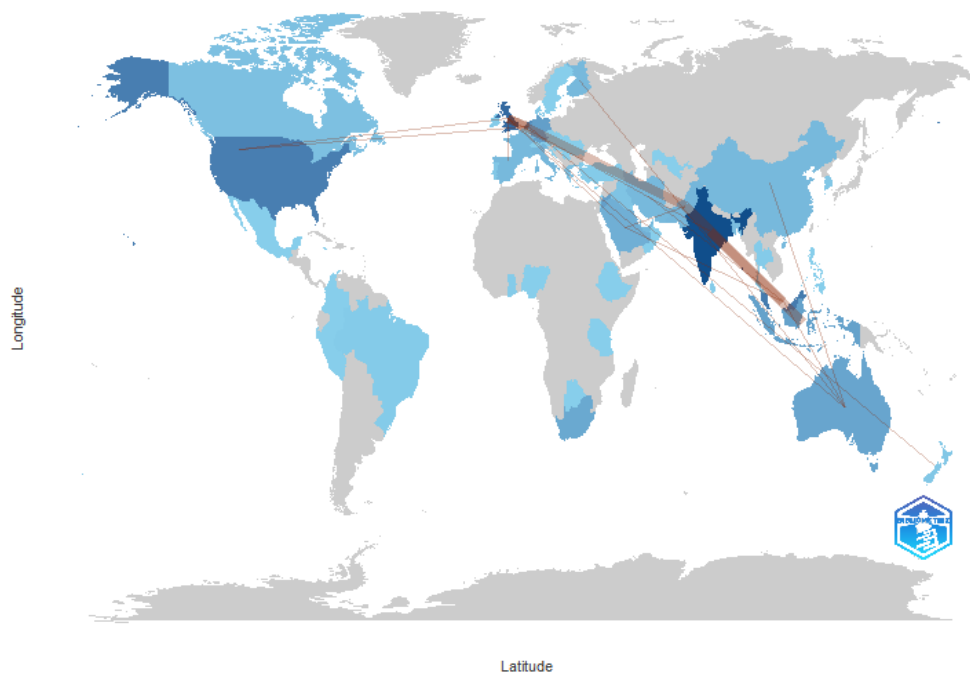


Figure 6. Collaboration Mapping

The country-pair collaboration data in the accompanying table further reinforce these observations, showing that the strongest partnerships include Malaysia–Indonesia, India–Australia, Netherlands–Belgium, and Australia–Finland. This pattern indicates that collaboration is not limited to partnerships among highly developed countries, but also involves emerging research regions with shared interests in digital HR and HRIS studies. Overall, these findings suggest that international collaboration is becoming an increasingly influential factor in shaping the diffusion and impact of HRIS scholarship, supporting earlier observations that countries with a higher share

of MCP publications tend to achieve greater citation visibility compared to those dominated by single-country output.

Source journals and citation distribution

This section examines the core publication venues that have contributed to the dissemination of HRIS research. The analysis identifies the most productive journals, the most highly cited sources, and the core set of journals defined by Bradford's Law. To identify which journals serve as the primary outlets for HRIS scholarship, the analysis also examines the distribution of publications across scientific sources. Figure 7 presents the most relevant journals in the field, based on the number of articles published within the dataset. The results show that (Bondarouk & Ruël, 2009; Hannon et al., 1996; Lin, 1997; Marler & Boudreau, 2017; Siddique, 2004; Strohmeier, 2009) is the most productive source, contributing a total of 19 publications, making it the leading journal for HRIS-related research. This is followed by the Advanced Series in Management with 17 publications, and Employee Relations (Burhan et al., 2023; L'Écuyer et al., 2019), which has published 11 articles on the topic. Other journals such as Human Resource Management Review (Marler & Fisher, 2013; Mauro & Borges-Andrade, 2020; Stone et al., 2015; Zafar, 2013), the International Journal of Human Resources Development (Aldmour & Love, 2015; Sadri & Chatterjee, 2003; Sanchez-Pérez & Aguayo-Camacho, 2007), and the International Journal of Business Information Systems (Delorme & Arcand, 2010; Gupta & Mittal, 2025; Pande & Gomes, 2015; Strohmeier & Kabst, 2012; Strohmeier & Piazza, 2010) each account for 7–8 publications, reflecting consistent but more moderate levels of scholarly output.

This distribution indicates that HRIS research is not limited to journals strictly focused on human resource management, but also appears in outlets that integrate technology, business, and management perspectives. This is evident in journals like the International Journal of Business Information Systems and Human Systems Management, demonstrating the interdisciplinary nature of HRIS as a research domain. These findings also align with typical bibliometric patterns in which a relatively small number of journals function as core sources, while others serve as complementary publication channels for knowledge dissemination.

In addition to identifying the most productive journals, it is also essential to examine which individual publications have had the greatest scholarly impact within the HRIS field. The analysis of the most highly cited documents, as presented in Figure 9, highlights the articles that have contributed most significantly to shaping the intellectual structure of HRIS research.

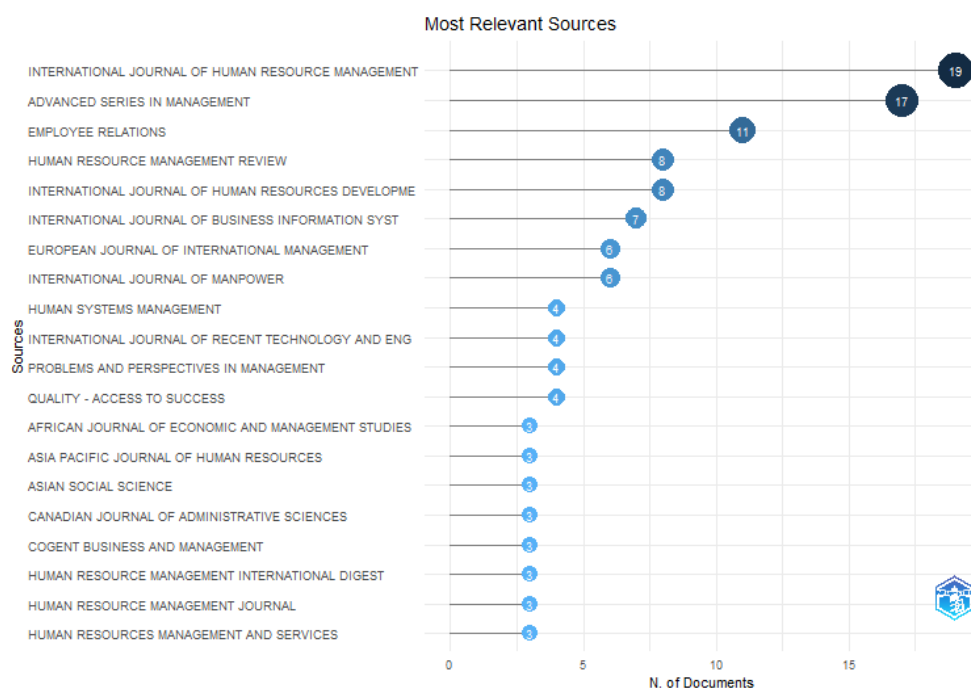


Figure 7. Most Relevant Sources

The visualization shows that the most influential paper is Marler (2017) published in *The International Journal of Human Resource Management*, which has received 510 global citations, indicating its central role in establishing conceptual foundations for digital HRM and analytics-based HRIS adoption. This is followed by Strohmeier (2007), Stone et al. (2015), and Dries (2013), all published in *Human Resource Management Review*, each accumulating between 369 and 391 citations. The clustering of these highly cited works in a small number of journals reinforces the earlier finding that HRIS scholarship is anchored in a limited set of high-impact publications.

Meanwhile, other influential papers such as Bondarouk (2017, 2016) and Arslan (2022) have received between 205–257 citations, demonstrating that impactful contributions continue to emerge in more recent years. The presence of both foundational and contemporary works in the top-cited list suggests that HRIS research is not only historically established, but also remains an active and evolving field of inquiry. It also implies that citation influence is not solely determined by publication age, but rather by the relevance of the topic, particularly in relation to digital transformation, HR analytics, and strategic human resource management.

In order to further validate the concentration of academic influence within HRIS research, the analysis also applies Bradford's Law to identify the core set of journals that serve as the primary carriers of knowledge in this field. As illustrated in Figure 9, the Bradford distribution reveals a clear segmentation between a small group of high-productivity journals and a much larger set of peripheral sources. The shaded area in the figure represents the core zone, which contains only a limited number of journals, yet accounts for the highest volume of published articles. These core sources include *The International Journal of Human Resource Management*, *Advanced Series in Management*, *Employee Relations*, *Human Resource Management Review*, and a few others that consistently appear in the earlier analysis of most relevant and most cited journals.

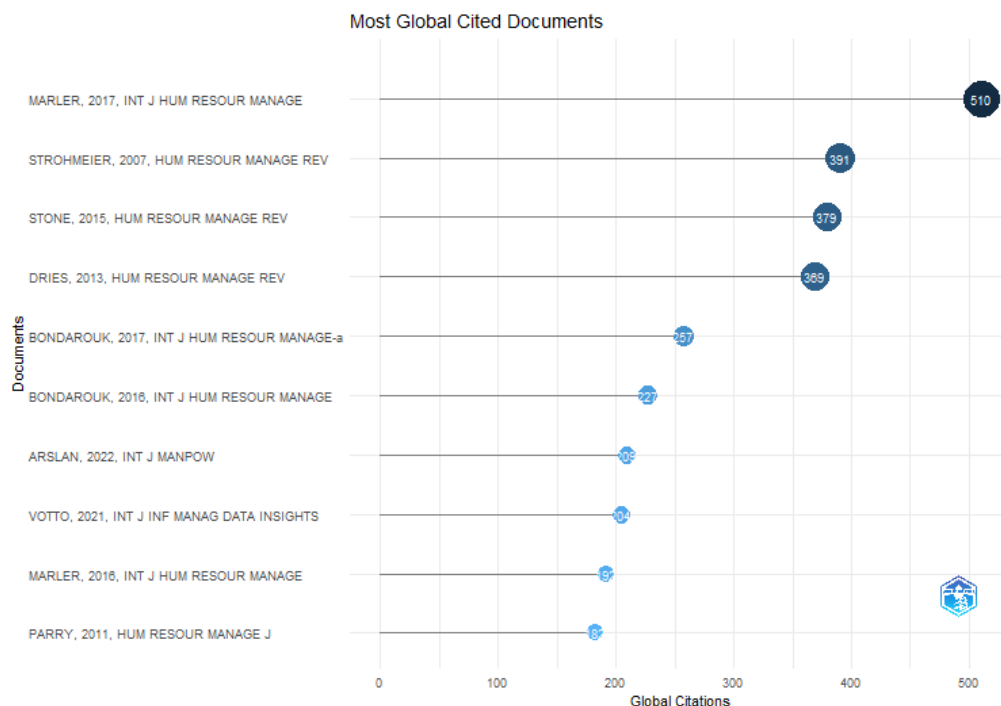


Figure 8. Most Global Cited Documents

The curve shows a steep decline after the core zone, indicating that the remaining journals each contribute only a small number of articles and are therefore classified as secondary or peripheral sources. This pattern confirms a typical bibliometric phenomenon in which scholarly output is highly concentrated in a small number of publication venues, suggesting that HRIS research is anchored in a tightly clustered set of disciplinary outlets, rather than being equally distributed across the broader academic landscape. The presence of this core journal set is also consistent with prior findings regarding citation impact, where many of the most frequently cited studies were published in the same group of journals.

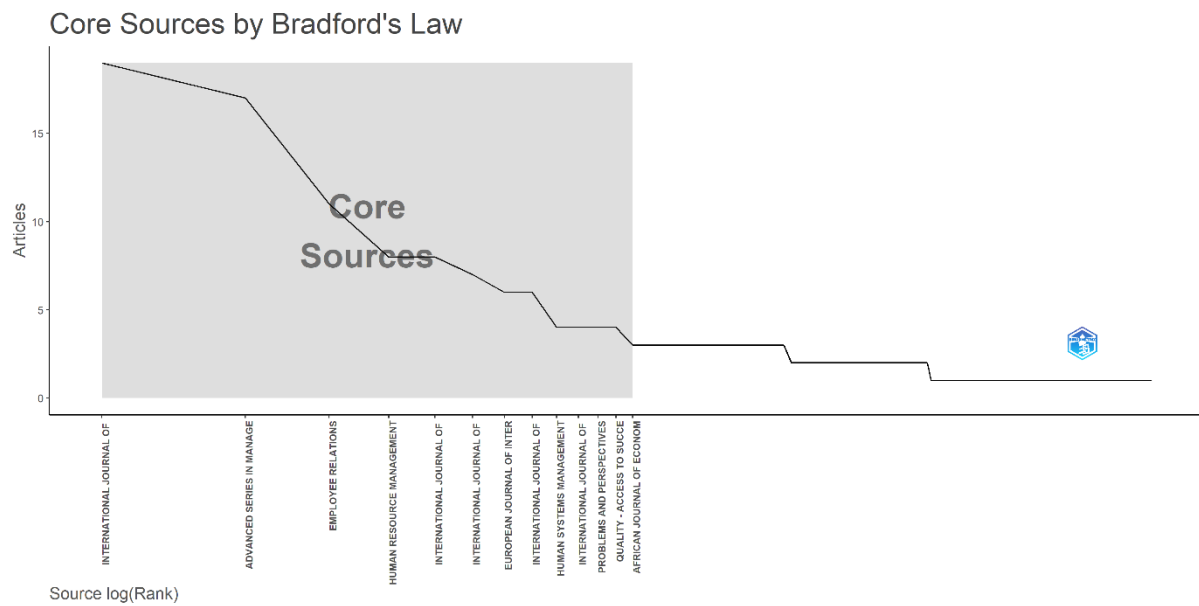


Figure 9. The Bradford Distribution

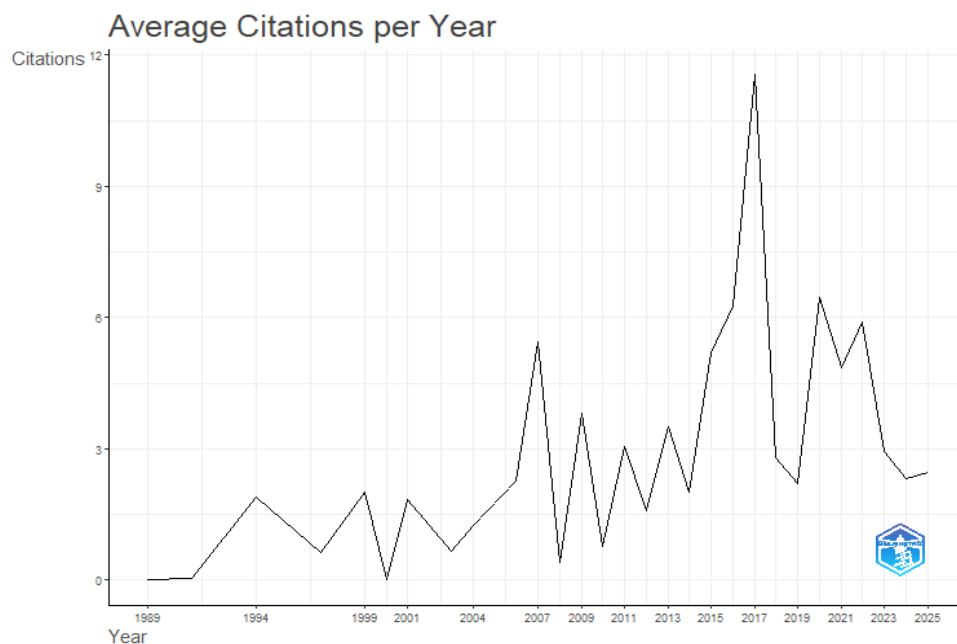


Figure 10. Average Citations per Year

Furthermore, the analysis also explores the temporal development of citation impact, as illustrated in Figure 10, which presents the trend of average citations per year, which serves as an indicator of the visibility and scholarly relevance of publications in different periods. The graph shows a relatively low citation rate during the early years (1989–2005), reflecting the initial developmental stage of HRIS as a research topic. A gradual increase appears after 2006, followed by a more noticeable rise in citation averages beginning around 2013, which corresponds to the growing academic interest in digital HR transformation and HR analytics. The peak occurs in 2017, where the average number of citations reaches its highest value, indicating that publications around this year have received substantial academic attention and likely represent a turning point in the maturity of research within the field.

After 2017, the trend becomes more fluctuating, with a visible decline from 2020 onward. This pattern is consistent with the bibliometric principle of citation lag, where newer publications (e.g., post-2020) have had less time to accumulate citations compared to earlier works. The fluctuation also reflects the increasing diversification of HRIS research, where citations may be more widely distributed across subtopics and interdisciplinary domains.

Scientific literature's thematic structure



Figure 11. TreeMap of Keywords

The TreeMap captures the field's attention structure, which keywords dominate rather than its theoretical maturity. Block size reflects salience, but high salience can arise from genuine theoretical productivity or from the repeated use of broad umbrella labels. The dominance of e-HRM (111 occurrences; 34%) indicates that HRIS scholarship in this corpus is largely framed as the digitalization of HR work and its socio-technical implications, not merely as an administrative information infrastructure. At the same time, the parallel presence of near-synonymous labels (HRIS, human resource information system[s], electronic HRM) suggests definitional overlap and terminological fragmentation, a pattern that inflates apparent thematic prominence while weakening cumulative knowledge because constructs and outcome measures become difficult to align across studies. The strong visibility of human resource management (21%) confirms anchoring in HRM theory, yet it also hints that explanations often remain rooted in general HR debates rather than system-specific mechanisms. This imbalance supports a substantive agenda for future research: moving beyond adoption and implementation narratives toward models that explain *how* HRIS generates value (e.g., decision quality, HR process standardization, workforce insights), *under what conditions* (e.g., data quality, organizational readiness, change management), and *for whom* (e.g., HR professionals vs line managers vs employees). Thus, the TreeMap should be interpreted as an initial diagnostic of thematic concentration and terminological boundaries, which must then be triangulated with thematic mapping and co-occurrence networks to evaluate whether the field is progressing through theoretical consolidation or merely expanding in volume.

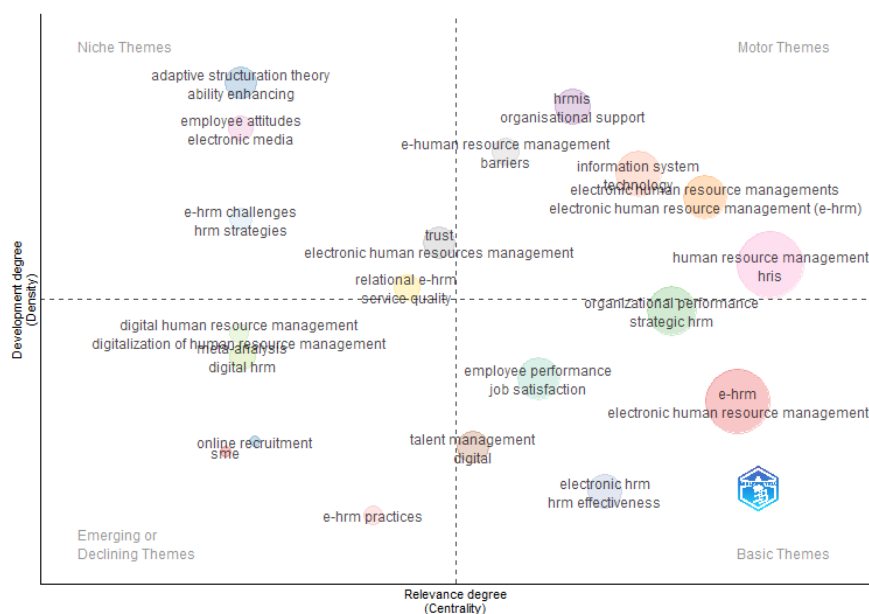


Figure 12. Thematic Map

Figure 12 situates HRIS scholarship within Callon's centrality–density space, allowing the field to be read as an evolving knowledge structure rather than a simple inventory of topics. Themes in the motor quadrant (e.g., HRIS, HRM, information systems/technology, e-HRM) are both central and internally cohesive, confirming a mature mainstream anchored in the intersection of HR practice and digital infrastructures. Yet this maturity also signals a familiar limitation: much of the evidence base still relies on repetitive association testing, while the mechanisms through which HRIS creates value remain under-specified. A more productive agenda is therefore to shift from adoption narratives to value-creation models, explicitly testing mediating pathways (decision quality, process standardization, information transparency, analytics capability, HR service quality) and tracing the value chain from system features to process change, capability formation, and downstream employee and organizational outcomes.

The basic quadrant (employee performance, job satisfaction, HRM effectiveness, talent management, variants of e-HRM) indicates high relevance but lower consolidation, consistent with definitional overlap and heterogeneous measurement. This pattern points to the need for construct clarification and standardization, including clearer boundaries among HRIS, e-HRM, and digital HRM, alongside more comparable outcome indicators. Niche themes (adaptive structuration theory, employee attitudes, electronic media) are conceptually strong yet weakly integrated with the mainstream; their contribution will depend on bridging behavioral/structuration perspectives to strategic outcomes by modeling appropriation and actual use as the missing link between acceptance and performance. Finally, emerging/declining themes (digital HRM, online recruitment, SMEs, e-HRM practices) require longitudinal verification to distinguish growth from decline, especially as AI-driven HR raises new questions about fairness, privacy, and shifting HR roles.

Methodologically, the map also exposes a constraint on cumulative progress: continued dependence on cross-sectional perceptual designs. Stronger longitudinal, quasi-experimental, multi-level, and multi-source studies leveraging HRIS log data and context-diverse settings are essential if the field is to move from broad claims to robust causal explanations. Figure 12 also tells a coherent story: HRIS scholarship has a well-defined, mature thematic core, but the quality of future contributions depends on the field's ability to move beyond dominant labels and routine adoption narratives. The map calls for a shift toward value-creation mechanisms, clearer boundary conditions for success and failure, construct standardization to enable cumulative evidence, integration of niche theories into the mainstream, stronger methodological designs, greater contextual diversity, and longitudinal re-mapping of emerging topics such as digital HRM and AI. If these agendas are pursued, HRIS research can evolve from describing digital HR transformation to offering precise causal explanations of how HR systems work, when they are effective, and why their impacts vary across organizations and user groups.

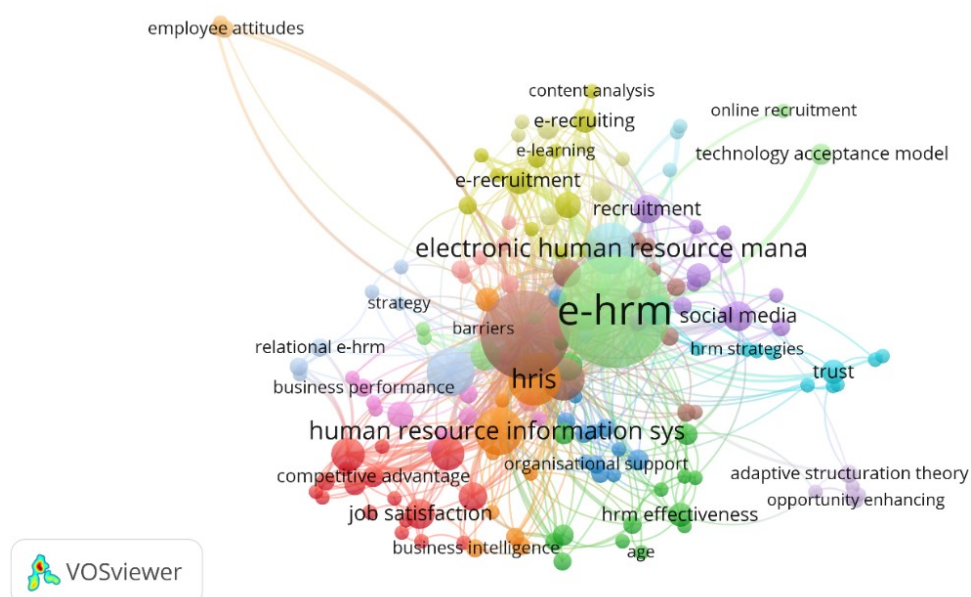


Figure 13. Keyword Co-occurrence Network Map

Figure 13 maps the conceptual structure of HRIS research through keyword co-occurrence: node size reflects term frequency, and link strength/proximity indicates how tightly concepts travel together in the literature. The network is anchored by e-HRM as the most central node, indicating that HRIS scholarship in this corpus is largely organized around the digitalization of HR work. This centrality is informative, but it also signals a conceptual risk: e-HRM often functions as an umbrella label, and its tight proximity to near-synonymous terms (HRIS; human resource information system[s]; electronic human resource management) suggests terminological overlap that can inflate apparent coherence while undermining cumulative evidence through inconsistent construct definitions and outcome measures.

The connections from the core to job satisfaction, business performance, and competitive advantage indicate an expanded strategic orientation, yet the map does not by itself imply explanatory maturity. The key question is whether this stream moves beyond direct associations (HRIS toward performance) to specify value-creation mechanisms, for example, how HRIS reshapes HR workflows, improves decision quality, enables analytics capability, or strengthens information governance. A second prominent stream clusters around TAM, trust, organizational support, employee attitudes, and social media, reflecting strong adoption–behavior traditions. Here, the recurrent limitation is a rich account of antecedents (intentions, perceived usefulness/ease, trust) with weaker tracing of actual use/appropriation and the downstream process changes that generate measurable outcomes, producing a partial silo between behavioral and performance-oriented research.

A critical reading of Figure 13 supports at least three future research agendas directly implied by the network structure. First, research should shift its center of gravity from adoption studies toward value creation by testing more operational mediators such as HR decision quality, process standardization, information transparency, HR service quality, and analytics capability. Second, future work should explicitly test boundary conditions that explain why HRIS impacts vary across organizations, including organizational-level moderators such as data quality and data governance, digital readiness, data-driven culture, top management support, and change management practices, and individual/job-level moderators such as digital literacy, administrative workload, the role of line managers versus HR specialists, and trust. Third, to address the terminological fragmentation suggested by the tight proximity of overlapping labels, future studies should build a clearer typology distinguishing HRIS, e-HRM, and digital HRM, while aligning outcome indicators so that evidence can be meaningfully compared across contexts. Finally, the co-occurrence network also implies a methodological imperative. If cross-cluster relationships are built mainly on cross-sectional perceptual surveys, causal claims will remain weak, and the field will continue to generate associations that cannot answer “why” and “when” HRIS is effective. Stronger designs include longitudinal pre–post implementation studies, quasi-experiments during module rollouts, multi-level and multi-source approaches, and the use of objective data such as HRIS usage logs (access frequency, module intensity, input quality) offer the most promising route to strengthening cumulative evidence. By treating Figure 13 as a structural diagnosis rather than a descriptive topic map, the discussion can demonstrate that progress in HRIS scholarship depends on integrating behavioral and value-based explanations, standardizing constructs, and adopting more rigorous research designs to produce genuinely cumulative and testable knowledge.

Figure 14 represents a conceptual structure map of research on human resource information systems (HRIS), generated using the multiple correspondence analysis (MCA) method. This map provides a visual representation of the conceptual relationships among keywords found in HRIS-related publications. Essentially, it identifies how different research concepts cluster together, revealing the underlying intellectual and thematic structure of the field. The position and proximity of terms on the map indicate their conceptual similarity or co-occurrence in the literature; the closer the terms, the more frequently they appear together in research studies.

From the visualization, several key thematic clusters can be identified. On the right-hand side, the densest cluster consists of core HRIS-related concepts such as human resource information system, HRIS, electronic human resource management (e-HRM), strategic HRM, employee performance, HRM effectiveness, and organizational performance. This indicates that

these terms form the central conceptual core of HRIS research, focusing on how information systems enhance HR functions, employee performance, and strategic competitiveness within organizations. The proximity of terms like digital transformation, artificial intelligence, machine learning, and data analytics shows that HRIS research is increasingly aligned with technological innovation and data-driven decision-making.

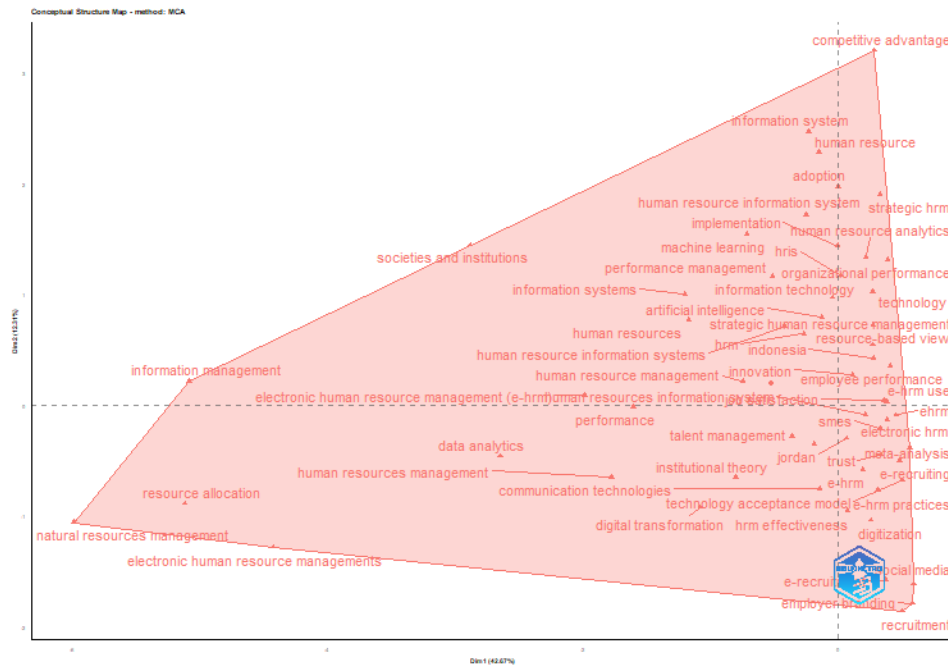


Figure 14. Conceptual Structure Map

The upper-right section includes terms such as competitive advantage, innovation, and resource-based view, suggesting a strategic perspective that links HRIS adoption with organizational performance and sustainability. This cluster reflects the growing recognition of HRIS as a strategic tool for achieving long-term business advantages through knowledge and resource optimization.

In the lower-right area, keywords such as e-recruiting, social media, employer branding, and recruitment appear together, representing a practical subfield focused on digital HR practices. These topics relate to the application of HRIS in talent acquisition, employer engagement, and digital recruitment systems. On the left-hand side, terms like information management, resource allocation, and data analytics form another cluster that reflects the technical and information management dimension of HRIS. This area highlights the system-level and data-driven aspects of HRIS implementation, where issues of system integration, data management, and process automation are key concerns. Additionally, terms such as societies, institutions, and institutional theory suggest that some HRIS research also explores organizational and contextual factors influencing system adoption, particularly across different countries or institutional environments.

Based on this map, several future research directions follow logically. First, the field needs construct clarification and standardization: develop a typology distinguishing HRIS (data/process infrastructure), e-HRM (digital delivery of HR practices/services), and digital HRM (strategic capability grounded in platforms, analytics, and automation), and align outcome indicators (HR process outcomes vs employee outcomes vs firm-level performance) to enable comparability. Second, research should move from “technology presence” to mechanisms of value creation, explicitly modeling how the technical stream (data governance, integration, analytics) translates into HR capabilities (decision quality, process standardization, transparency) and then into employee and organizational outcomes. Third, the map encourages bridge-building across clusters: connect recruitment/social media research to longer-term strategic outcomes (workforce quality, fairness, retention), connect RBV claims to measurable capability formation, and incorporate institutional theory as boundary conditions rather than as a peripheral contextual note. Finally, methodologically,

these integrative models will require stronger longitudinal, multi-source designs and the use of objective data (e.g., HRIS logs, process metrics) to test whether AI/analytics terms represent substantive shifts or simply rhetorical adoption. In this way, Figure 14 becomes not only a descriptive visualization but a diagnostic instrument for identifying where HRIS scholarship is mature, where it is fragmented, and where the most defensible future contributions can be made.

Conclusion

This bibliometric study delineates the intellectual trajectory and thematic configuration of HRIS research (1989–2025), evidencing a gradual reorientation from predominantly technology-centric discourse toward more strategic, data-driven, and human-centered perspectives. Foundational constructs (e-HRM, HRIS, and digital HR) remain structurally central to the knowledge network, while emergent streams related to HR analytics, AI-enabled HR, employee trust, and strategic digitalization display increasing prominence and citation velocity. The findings further indicate a marked geographical asymmetry: India and Malaysia contribute substantially to publication volume, alongside the United Kingdom and the United States, whereas citation influence remains disproportionately concentrated in Western publication venues, suggesting unequal visibility and diffusion of knowledge across regions. Taken together, the literature increasingly frames HRIS not merely as an instrument of administrative efficiency, but as an organizational capability that supports workforce intelligence, strategic agility, and evidence-informed decision-making.

Several limitations warrant acknowledgment. The analysis is confined to Scopus-indexed, English-language documents, which may underrepresent regionally disseminated and non-English scholarship. In addition, bibliometric techniques identify macro-structural patterns (e.g., thematic clusters, conceptual linkages, and citation-based influence) but do not directly assess the theoretical contribution, contextual nuance, or methodological rigor of individual studies. Notwithstanding these constraints, the results yield practical and scholarly implications. For practitioners, the identified thematic clusters provide an evidence-based orientation for prioritizing HR digital capability development, particularly in analytics readiness, user adoption and trust, and alignment between HR technologies and strategic objectives. For educators and policy stakeholders, the findings support the incorporation of HR analytics, digital governance, and socio-technical change management competencies into curricula and capability frameworks. Future research should broaden data coverage beyond a single database, triangulate bibliometric mapping with qualitative synthesis, and examine emerging socio-technical risks like algorithmic bias, digital ethics, privacy, and employee experience in AI-mediated HR through longitudinal, multi-source, and cross-national comparative designs, with particular attention to underrepresented institutional and regional contexts.

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