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Human Resource Information Systems (HRIS) In Small And Medium-Sized Enterprises (SMEs): A Bibliometric Analysis Of Adoption, Acceptance, And Organizational Outcomes

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ABSTRACT (10 PT)

Objective: This study maps the intellectual structure of Human Resource Information Systems (HRIS) in Small and Medium-sized Enterprises (SMEs) to identify trends in adoption, technology acceptance, and organizational outcomes through a bibliometric analysis.

Theoritical Framework: The research utilizes a multi-theoretical perspective, integrating Technology Acceptance Models (TAM/UTAUT) with Resource-Based Views to conceptualize HRIS not merely as an administrative tool, but as a strategic capability constrained by the unique resource limitations of SMEs.

Method: A bibliometric analysis of 885 articles from Scopus, covering the publication years 1999–2026, was performed using Biblioshiny in R. The study employed performance analysis and science mapping (co-citation and keyword co-occurrence) to categorize the literature into distinct thematic clusters regarding digital HR transformation..

Results and Discussion: Results indicate accelerating growth in the last decade. Thematic analysis reveals clusters centered on e-HRM, digital readiness, and organizational performance. Uniquely, SME-focused findings highlight critical context-specific constraints, specifically limited resources and vendor dependence, that distinguish adoption patterns from large enterprises, revealing a fragmentation between theoretical acceptance and actual value realization.

Research Implication: Findings highlight the need for readiness assessment and governance frameworks. Future development should focus on modular, fit-for-purpose HRIS solutions designed specifically to improve SME performance.

Originality / Value: This study presents a comprehensive roadmap of HRIS research in SMEs, offering a unified agenda that bridges the gap between acceptance theories and practical implementation challenges in developing economies.

1. INTRODUCTION

The rapidly increasing digitization of work has led to the evolution of Human Resource Information Systems (HRIS) from back-office administrative tools to strategic platforms that support workforce analytics, data-driven HR decision-making, and organization-wide digital transformation (Rifga et al., 2025). In addition to system quality and functionality, empirical research increasingly

shows that HRIS effectiveness depends on organizational capabilities such as change management, information quality, executives' creativity, and staff IT competencies, particularly in SMEs and regulated industries (Wibawa et al., 2018). These developments suggest that HRIS research is about to move into a new phase where concepts like agility, adaptability, and dynamic capacities will play a major role in understanding how HRIS supports sustainable performance (Quaosar et al., 2018).

Despite progress, the conceptual framework linking HRIS to IS ambidexterity and change management remains fragmented (Siddique et al., 2025) . Prior reviews have typically focused on HRIS adoption factors or general HRM and HR analytics trends without systematically mapping how the literature integrates frameworks like the Technology–Organization–Environment (TOE) model, the Resource–Based View (RBV), and Dynamic Capabilities Theory (DCT) in explaining HRIS effectiveness (Satispi et al., 2023). Recent empirical studies on SMEs and financial institutions emphasize the mediating roles of change management and IS ambidexterity, but they are dispersed across journals and contexts, making it difficult for scholars and practitioners to get a cohesive picture of key authors, emerging research areas, and dominant themes (Alkilani et al., 2025).

To fill this gap, this study conducts a bibliometric analysis of the HRIS literature, focusing on digital transformation, change management, and IS ambidexterity. The study uses the Scopus database as its primary source to map publishing trends, notable sources, collaboration networks, and thematic clusters. Co-citation and keyword co-occurrence analysis are carried out using Biblioshiny. In contrast to earlier HRIS bibliometric work that emphasized general HRIS adoption and performance, this review focuses on the intersection of HRIS with organizational agility, change readiness, and dynamic capabilities in the context of Industry 4.0 and AI-enabled HR practices (Ng et al., 2024; Vilma & Booshnam, 2025).

The findings are expected to clarify how HRIS scholarship has incorporated concepts like change management, information quality, executives' inventiveness, and staff IT competencies into models of HRIS effectiveness, as well as to shed light on understudied topics like IS ambidexterity in HRIS settings. This bibliometric approach organizes and expands current knowledge on HRIS as a strategic, capability building system, making theoretical contributions in addition to providing practitioners and policymakers with an evidence based map of trends and gaps that can guide future investments and research agendas in digital HR transformation (Solatorio et al., 2025).

2. THEORITICAL FRAMEWORK

2.1. HUMAN RESOURCE INFORMATION SYSTEMS IN THE DIGITAL ERA

HRIS serves as a basic digital infrastructure turning HR from an administrative function into a strategic partner (Estradha et al., 2025). In SMEs and service industries, HRIS centralizes personnel data and streamlines payroll, enabling evidence-based decisions that improve competitiveness despite limited resources (Tursunbayeva, 2019). Although adoption in smaller firms is frequently constrained by budget and technological capability, successful implementation allows these organizations to bypass

traditional paperwork and align HR services with broader business strategies, supporting long-term resilience rather than just short-term efficiency (Stace et al., 2023).

2.2. HRIS EFFECTIVENESS AND SUSTAINABLE DIGITAL TRANSFORMATION

HRIS effectiveness is defined by system usability, information quality, and alignment with organizational goals (Votto et al., 2021). Literature emphasizes that for SMEs, context-specific deployment strategies are crucial (Zhou, 2025) . By simplifying procedures, HRIS immediately improves organizational outcomes in smaller setups (Memon et al., 2022). However, to produce real performance benefits in resource-limited organizations, change management emerges as a critical competency to overcome resistance and ensure affective readiness among staff (Shahreki & Lee, 2024).

2.3. HRIS ACCEPTANCE, BEHAVIOURAL INTENTION, AND WORK RELATED OUTCOMES

Research based on the Unified Theory of Acceptance and Use of Technology (UTAUT) suggests that in SMEs from emerging economies, HRIS effectiveness depends heavily on user beliefs (Mamun, 2022). Factors such as performance expectancy and facilitating conditions are critical drivers of behavioral intention (Quaosar et al., 2018). Beyond administrative efficiency, successful adoption in these settings is associated with greater employee creativity and organizational citizenship behavior (Series, 2019). However, a significant portion of the literature focuses on post-implementation use, often overlooking the structural barriers that prevent many SMEs from adopting HRIS in the first place (Vilma & Booshnam, 2025).

2.4. LITERATURE GAP

Existing research reveals three primary gaps justifying this bibliometric analysis. First, there is a disconnect between "adoption studies" (barriers to entry) and "acceptance studies" (post-implementation usage), particularly in the SME sector. Second, HRIS is inconsistently conceptualized, sometimes as a database, other times as a strategic socio-technical system. Third, there is a dearth of bibliometric studies mapping these patterns specifically within SME and emerging economy contexts (Li & Guillaume, 2021; Shahreki & Lee, 2024). This study addresses these voids by visualizing the intellectual structure of HRIS research to identify understudied intersections critical for SME digitalization.

3. RESEARCH METHODS

This study employs a bibliometric analysis to systematically map the intellectual structure and thematic evolution of HRIS research, with a specific lens on adoption, acceptance, and organizational outcomes (Zupic & Čater, 2015). The methodology follows a transparent workflow, including data identification, screening, eligibility, and final inclusion, and utilizes the Scopus database due to its

extensive coverage of high-quality management and information systems literature (Mongeon & Paul-Hus, 2016).

3.1. DATA COLLECTION AND SEARCH STRATEGY

Data retrieval was conducted in January 2025. The search strategy targeted documents containing specific keywords in the Article Title, Abstract, or Keywords (TITLE-ABS-KEY). The search string employed was: ("Human Resource Information System" OR "HRIS").

The search timeframe was set from 1988 to 2024, capturing the full evolution of the field from early administrative systems to modern digital platforms. To ensure scientific rigor, the search was limited to peer-reviewed sources (articles, conference papers, and reviews) published in English, excluding trade journals, editorials, and short notes.

3.2. DATA SCREENING AND ANALYSIS (PRISMA FLOW)

The screening process followed the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) logic as presented in Table 1.

1. **Identification:** Initially, **885 records** were identified from the Scopus database.
2. **Screening:** The first round involved automated exclusion of non-English documents, duplicates, and non-peer-reviewed materials, resulting in **787 documents**.
3. **Eligibility:** A manual screening of titles and abstracts was conducted to ensure relevance. Articles that discussed "information systems" generally without specific HR applications, or medical papers using the acronym "HRIS" for unrelated terms (e.g., Health Record Information Systems), were excluded.: A manual screening of titles and abstracts was conducted to ensure relevance. Articles that discussed "information systems" generally without specific HR applications, or medical papers using the acronym "HRIS" for unrelated terms (e.g., Health Record Information Systems), were excluded.
4. **Inclusion:** Finally, a full-text review was performed to ensure the content specifically addressed HRIS adoption or outcomes relevant to organizational contexts, including SMEs. **The final dataset consisted of 93 documents** eligible for bibliometric analysis.

3.3. BIBLIOMETRIC ANALYSIS TOOLS

The final dataset was analyzed using Biblioshiny, a web-based interface for the R-package bibliometric (Aria & Cuccurullo, 2017). This tool was selected for its capability to perform comprehensive science mapping, including:

1. **Performance Analysis:** To measure the productivity and impact of authors, countries, and sources (journals/proceedings).
2. **Knowledge Mapping:** Employing network analysis techniques for co-citation networks, keyword co-occurrence, and thematic evolution to identify clusters specifically related to adoption barriers and SME contexts (Donthu et al., 2021).

Tabel 1.

Stage	Description	Count (n)
1. Identification	Initial search in Scopus (TITLE-ABS-KEY: "Human Resource Information System" OR "HRIS"). Timeframe: 1988–2024.	**885**
2. Screening	Exclusion of non-English documents, editorials, book reviews, and duplicates.	**787**
3. Eligibility	Manual screening of titles/abstracts to remove irrelevant topics (e.g., medical records, non-organizational contexts).	**~150***
4. Inclusion	**Final documents** selected for bibliometric analysis after full-text review.	**93**

Note: The final inclusion (n=93) represents the core dataset used for visualization in the Results section.

4. RESULTS AND DISCUSSION

4.1. PERFORMANCE BIBLIOMETRICS ANALYSIS

Data was retrieved from the Scopus database spanning 1988 to 2024. Following the exclusion of duplicates and irrelevant entries, the final dataset consisted of 93 documents including articles, conference papers, and reviews. The collection shows an average annual growth rate of 9.47%, indicating sustained interest. With an average citation of 6.89 per document and an average document age of 3.68 years, the field is relatively young but impactful. The analysis identified 289 author keywords and involved 255 authors, with 12.9% of articles exhibiting international co-authorship, highlighting the global relevance of HRIS in diverse business contexts.

Table 2.

Main Information

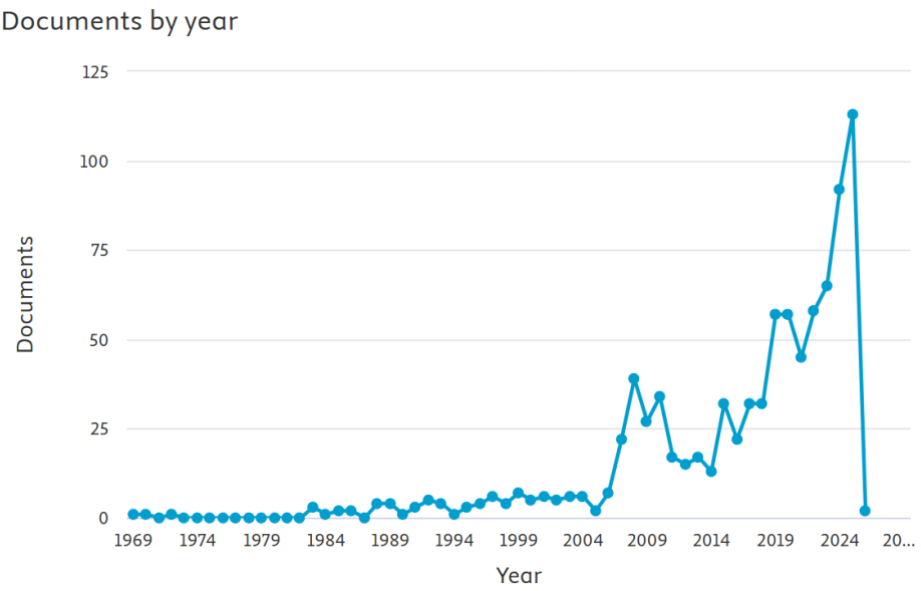
Description	**Results**
Main Information About Data	
Timespan	1998 – 2024
Sources (Journals, Books, Etc)	85
Annual Growth Rate	9.47 %
Document Average Age	3.68
Average Citations Per Doc	6,889
Document Contents	
Keyword Plus (ID)	269
Author's Keywords (DE)	289
Authors	255
Authors Of Single – Authored Docs	49
Authors Collaboration	
Single – Authored Docs	20
Co – Authors Per Doc	2.99
International Co – Authorships%	12.9 %

Source: Biblioshiny

4.2. PUBLICATION TRENDS

Figure 1

Annual Scientific Production

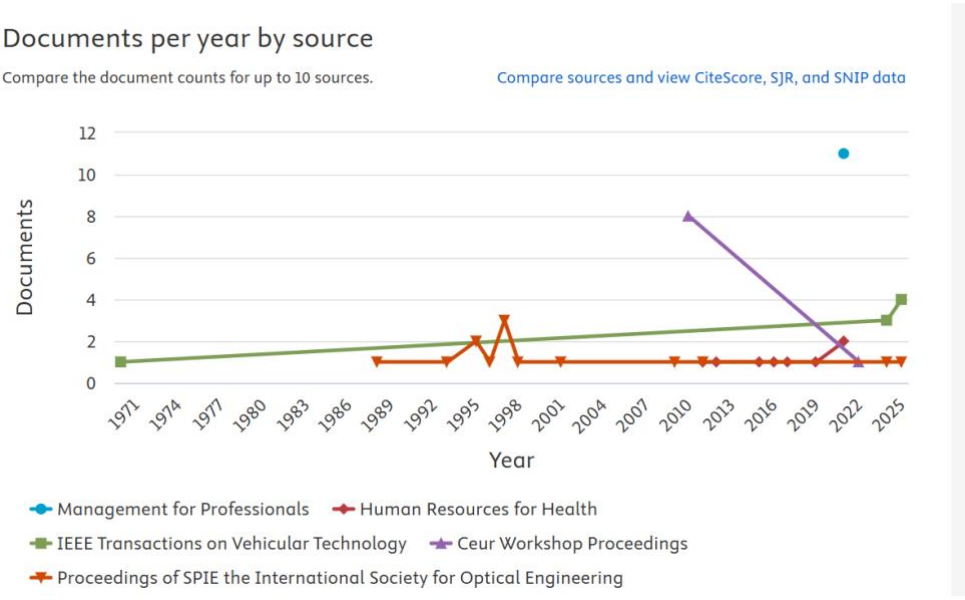


Source: Biblioshiny

Publication trends from 1988 to 2024 show a shift from a niche topic to a rapidly growing field. For decades, output was minimal, but a distinct "take-off" occurred in the mid-2000s, reaching 20–40 documents annually in recent years. This surge aligns with the global push for Industry 4.0, which has made digital HR tools more accessible to smaller enterprises.

Figure 2

Sources' Production Over Time



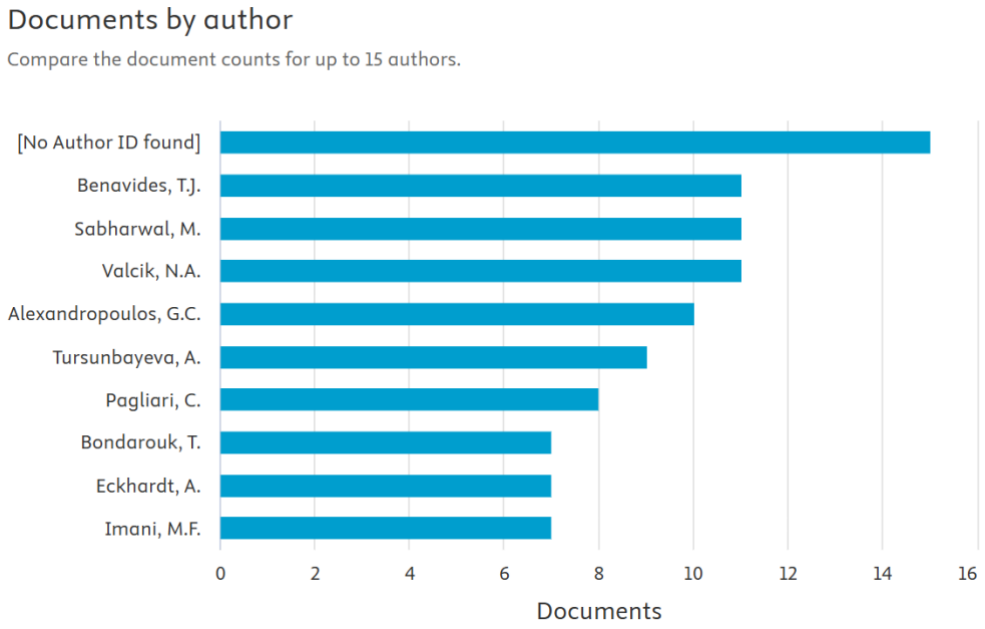
Source: Biblioshiny

The evolution of publication sources reflects a transition from technical to managerial focuses. Early research (1970s–90s) appeared in technical venues like IEEE Transactions, treating HRIS as an engineering topic. By 2010, sources like Human Resources for Health appeared, addressing workforce management in resource-constrained settings. Most notably, recent outputs are concentrated in series like Management for Professionals (peaking in 2023), which emphasizes practical integration. This shift suggests that HRIS discourse has moved from "how to build the system" to "how to manage the system," a topic highly relevant for SME owners and practitioners.

4.3. AUTHOR ANALYSIS AND COLLABORATION

Figure 3

Most Relevant Author

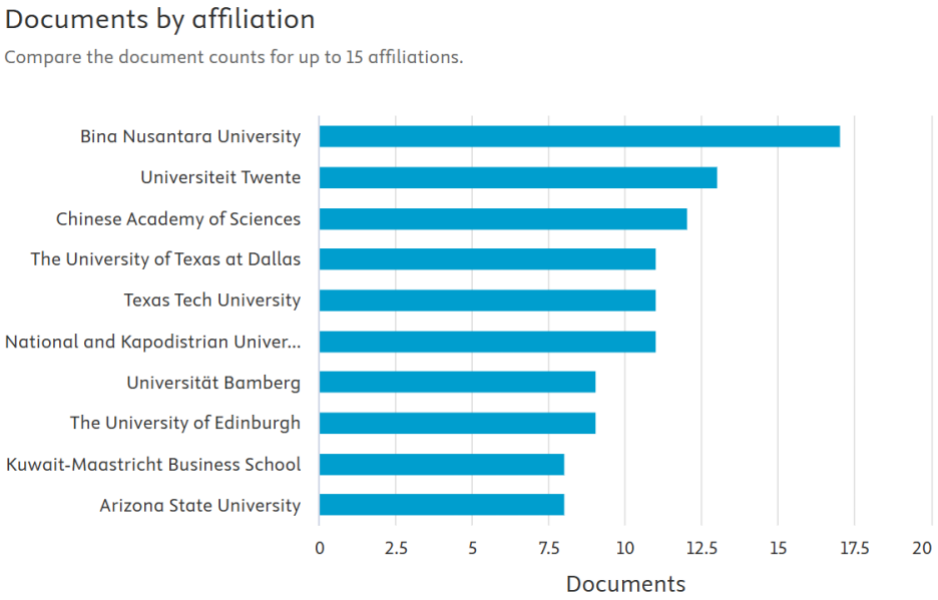


Source: Biblioshiny

The field is driven by a core group of productive scholars including Al-Dmour R.H., Newell S., and Tansley C., who have extensively covered HRIS adoption in developing contexts. Their sustained output suggests that successful HRIS implementation requires understanding local constraints a key lesson for SMEs. Surrounding this core is a growing community of transient authors introducing fresh perspectives on HR analytics and UTAUT-based adoption.

Figure 4

Author Collaboration Network

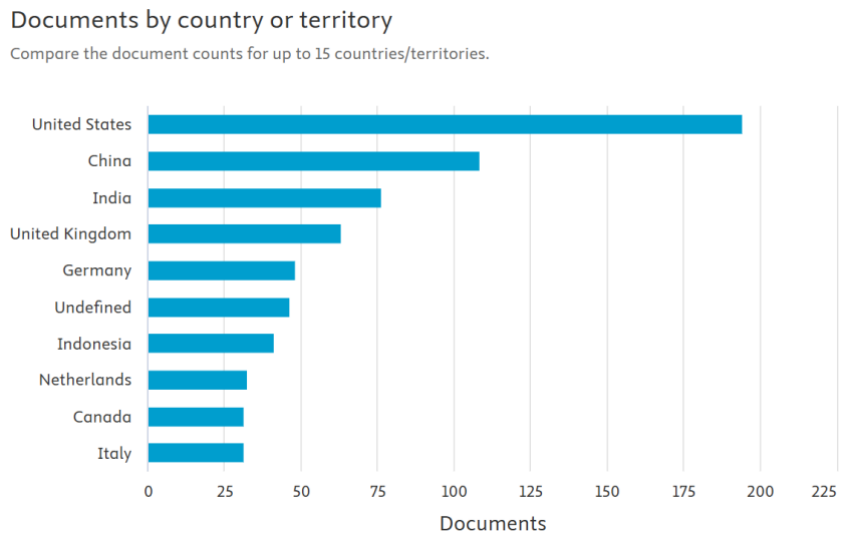


Source: Biblioshiny

Institutional analysis reveals that research is not monopolized by Western giants. Bina Nusantara University (Indonesia) emerges as a leading affiliation (approx. 18 documents), followed by Universiteit Twente and the Chinese Academy of Sciences. The prominence of Indonesian and Chinese institutions is significant; it indicates that a substantial portion of HRIS research is being conducted in economies dominated by SMEs and developing markets, rather than solely in large Western corporations.

Figure 5

Corresponding Author's Countries



Source: Biblioshiny

While the United States leads with ~200 documents, the "Global South" is well-represented. China, India, and Indonesia contribute significantly, reinforcing the argument that HRIS challenges are universal but context-dependent. The high volume of research from these emerging economies provides a rich database of evidence for SME-specific challenges, such as cost sensitivity and infrastructure gaps.

4.7. THEORITICAL AND PRACTICAL IMPLICATIONS

Theoretical Implications This study confirms that HRIS scholarship is shifting from a system-oriented perspective to a socio-technical one. The clusters formed around keywords like "SMEs," "developing countries," and "performance" suggest that HRIS is no longer seen merely as an administrative tool but as a capability that redistributes information rights (Quaosar et al., 2018). However, while frameworks like TAM and UTAUT are widely used, they are often applied without sufficient modification for the SME context (e.g., owner-manager dominance). Future theory development must integrate work design and employee well-being theories to understand the micro-level impact of digitalization in small teams.

Practical Implications For practitioners, particularly in SMEs, the findings demonstrate that "less is often more." Evidence suggests that basic, modular HRIS aligned with organizational size can significantly improve compliance and decision-making without the need for enterprise-level complexity (Memon et al., 2022). The key to success lies not in the software itself, but in change management capabilities. Policymakers and vendors should focus on "capacity building" rather than just selling software—providing training and support frameworks that address the specific skill gaps found in smaller enterprises (Stace et al., 2023).

5. CONCLUSION

This bibliometric analysis confirms that HRIS has evolved into a strategic infrastructure essential for organizational agility, increasingly relevant for the SME sector. The intellectual structure of the field is expanding globally, driven by contributions from emerging economies like Indonesia and India, which offer critical insights into adoption under resource constraints. However, gaps remain regarding the micro-level impacts of HRIS on employee well-being in small firms. Future research should prioritize longitudinal, mixed-method studies to assess these human outcomes. For practice and policy, the clear message is to prioritize context-fit and change readiness over technical sophistication to ensure sustainable digital transformation in SMEs.

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