

THE DEVELOPMENT OF HUMAN CAPITAL DISCLOSURE AND FIRM PERFORMANCE RESEARCH

PERKEMBANGAN PENELITIAN MENGENAI PENGUNGKAPAN MODAL MANUSIA DAN KINERJA PERUSAHAAN

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ABSTRACT

Human Capital Disclosure (HCD) has become increasingly important as organisations seek to communicate the value of employee knowledge, skills, and capabilities. However, research linking HCD and firm performance remains fragmented across accounting, strategic management, corporate governance, human resource management, and sustainability. This study maps the development and knowledge structure of the field through a systematic literature review, bibliometric performance analysis, and science mapping of 86 peer-reviewed publications published between 1982 and 2025. The findings identify four interconnected themes: intellectual capital valuation and voluntary disclosure; corporate governance and reporting quality; strategic human capital and firm performance; and sustainability and digital transformation. The literature has evolved through three phases, from foundational valuation and disclosure, through governance and integrated reporting, to sustainability-oriented and digitally enabled analysis. The Resource-Based View is the dominant theoretical lens, supported by Agency, Stakeholder, Signaling, Human Capital, and Resource Dependence theories. Recent studies increasingly apply textual analysis, machine learning, artificial intelligence, and large-scale archival methods. This study consolidates fragmented research streams and clarifies how human capital resources, disclosure practices, governance mechanisms, and stakeholder interpretations influence organisational outcomes.

Keywords: human capital disclosure; firm performance; intellectual capital; non-financial reporting; bibliometric analysis; science mapping; corporate sustainability.

ABSTRAK

Pengungkapan Modal Manusia (*Human Capital Disclosure* atau HCD) menjadi semakin penting seiring upaya organisasi untuk mengomunikasikan nilai dari pengetahuan, keterampilan, dan kapabilitas karyawan. Namun, penelitian yang mengaitkan HCD dengan kinerja perusahaan masih terfragmentasi di berbagai bidang, seperti akuntansi, manajemen strategis, tata kelola perusahaan, manajemen sumber daya manusia, dan keberlanjutan. Studi ini memetakan perkembangan dan struktur pengetahuan bidang tersebut melalui tinjauan pustaka sistematis, analisis kinerja bibliometrik, dan pemetaan sains terhadap 86 publikasi yang telah melalui telaah sejawat (*peer-reviewed*) yang diterbitkan antara tahun 1982 dan 2025. Temuan studi mengidentifikasi empat tema yang saling terkait: penilaian modal intelektual dan pengungkapan sukarela; tata kelola perusahaan dan kualitas pelaporan; modal manusia strategis dan kinerja perusahaan; serta keberlanjutan dan transformasi digital. Literatur ini telah berkembang melalui tiga fase: mulai dari penilaian dan pengungkapan dasar, berlanjut ke tata kelola dan pelaporan terintegrasi, hingga analisis yang berorientasi pada keberlanjutan dan didukung oleh teknologi digital. *Resource-Based View* (Pandangan Berbasis Sumber Daya) menjadi lensa teoretis yang dominan, didukung oleh teori agensi, pemangku kepentingan (*stakeholder*), sinyal (*signaling*), modal manusia, dan ketergantungan sumber daya. Penelitian terkini semakin banyak menerapkan analisis tekstual, pembelajaran mesin (*machine learning*), kecerdasan buatan (*artificial intelligence*), dan metode arsip berskala besar. Studi ini mengonsolidasikan berbagai aliran penelitian yang terfragmentasi serta memperjelas bagaimana sumber daya modal manusia, praktik pengungkapan, mekanisme tata kelola, dan interpretasi pemangku kepentingan memengaruhi hasil organisasi.

Kata kunci: pengungkapan modal manusia; kinerja perusahaan; modal intelektual; pelaporan non-keuangan; analisis bibliometrik; pemetaan sains; keberlanjutan perusahaan.

INTRODUCTION

The expansion of knowledge-based and technology-intensive

economies has elevated human capital from an operational input to a strategic source of organisational value.

Employees' knowledge, skills, experience, creativity, and adaptability influence productivity, innovation, resilience, and competitive advantage. Empirical evidence increasingly confirms that intellectual and human capital contribute to financial and organisational performance, although the magnitude of these effects varies across industries, governance structures, and organisational contexts (Nadeem et al., 2018; Albertini & Berger-Remy, 2019; Essel, 2025). Despite its economic significance, human capital remains only partially represented in conventional financial statements because most expenditures on recruitment, training, development, and employee wellbeing are recognised as current expenses rather than investments that may generate future benefits.

HCD has consequently emerged as an important mechanism for communicating workforce-related resources that are not adequately captured by traditional accounting measures. It encompasses qualitative and quantitative information on workforce composition, employee competencies, training and development, productivity, remuneration, diversity, turnover, engagement, occupational health and safety, leadership development, succession planning, and talent retention. More advanced reporting also explains how workforce capabilities support corporate strategy, innovation, sustainability, risk management, and long-term value creation. Recent studies show that transparent human capital reporting is increasingly associated with ethical governance, corporate responsibility, sustainability implementation, and organisational accountability (Serpeninova et al., 2025; Mariappanadar, 2025).

HCD may affect firm performance through several interconnected

mechanisms. Externally, it can reduce information asymmetry, signal management quality, strengthen corporate reputation, and help investors assess organisational capabilities and workforce-related risks. Evidence from integrated and intellectual-capital reporting indicates that the quality and extent of intangible-resource disclosure can influence firm valuation, stakeholder perceptions, and capital-market outcomes (Salvi et al., 2020; Mardini & Lahyani, 2022; Singhanian & Panda, 2025). Internally, the measurement and reporting of workforce indicators may improve strategic planning by encouraging managers to identify competency gaps, monitor employee outcomes, evaluate workforce investments, and align human-resource practices with organisational objectives. HCD can therefore operate simultaneously as an external accountability mechanism and an internal management capability.

The increasing integration of human capital information with sustainability and ESG reporting has further broadened the field. Workforce diversity, employee development, workplace safety, equitable treatment, and labour practices are now frequently incorporated into non-financial and sustainability reports. Board composition and governance structures may also influence the quality of social and workforce-related disclosure, demonstrating that human capital reporting is closely connected with corporate oversight and broader stakeholder accountability (Evangelista et al., 2024). This development has shifted HCD beyond conventional intellectual-capital reporting toward a more comprehensive assessment of how firms manage their social and organisational resources.

Digital transformation is also changing how human capital information is collected, analysed, and communicated. Human-resource information systems, workforce analytics, artificial intelligence, and automated textual analysis allow organisations and researchers to process increasingly detailed information on employee capabilities, productivity, mobility, engagement, and retention. Recent applications of natural language processing and large language models demonstrate the potential to quantify human capital information and evaluate the credibility of corporate sustainability narratives at scale (He & Wang, 2025; Xie et al., 2025). These developments offer opportunities to improve disclosure measurement, but they also introduce concerns regarding data quality, algorithmic transparency, privacy, surveillance, and responsible use.

Greater data availability does not necessarily produce comparable or decision-useful reporting. HCD remain inconsistent across firms, industries, and reporting jurisdictions. Some organisations provide detailed quantitative indicators, whereas others rely primarily on broad narratives about employees, culture, and organisational values. Differences in definitions, measurement procedures, reporting boundaries, and levels of aggregation make cross-firm comparisons difficult. Disclosure tone may also be used strategically to emphasise favourable information while obscuring workforce challenges or weak organisational performance (Beretta et al., 2019). HCD may therefore function as substantive accountability, symbolic communication, or impression management, depending on the credibility and verifiability of the information provided.

Human capital reporting also entails strategic costs and organisational risks. Detailed workforce disclosure may reveal proprietary information about employee capabilities, strategic priorities, talent dependence, or organisational vulnerabilities. Research on employee mobility, trade-secret protection, and turnover demonstrates that the movement or loss of key personnel can affect investment decisions, corporate transactions, cash policies, and firm performance (Chen et al., 2021; Chowdhury & Doukas, 2022; Li et al., 2022). Managers must therefore balance stakeholders' demands for transparency against confidentiality, competitive exposure, administrative costs, and employee privacy.

The relationship between HCD and firm performance remains theoretically and empirically complex. Firm performance has been measured through profitability, return on assets, return on equity, productivity, market value, stock performance, cost of capital, innovation, and organisational resilience. These outcomes capture different dimensions of performance and may respond differently to workforce-related information. The relationship may also depend on firm size, industry knowledge intensity, ownership structure, corporate governance, reporting quality, and institutional conditions. Recent evidence suggests that intellectual-capital disclosure can improve firm performance and market valuation, but its effects are neither uniform nor automatic across organisational settings (Albertini & Berger-Remy, 2019; Mardini & Lahyani, 2022; Singhania & Panda, 2025).

Causal direction represents an additional challenge. Human capital investments may require considerable time before producing measurable

financial outcomes, while profitable firms may possess greater resources and incentives to develop sophisticated reporting systems. Strong-performing organisations may disclose more because they have favourable workforce information to communicate, whereas weaker firms may use extensive narratives to manage stakeholder perceptions. These possibilities create endogeneity, reverse-causality, and measurement concerns that complicate the interpretation of observed associations between disclosure and performance.

Research in this area remains dispersed across accounting, finance, intellectual capital, corporate governance, sustainability, human-resource management, and strategic management. Some studies position human capital reporting as a component of intellectual-capital disclosure, while others examine it through integrated reporting, ESG disclosure, sustainability reporting, human-resource accounting, or capital-market communication. These streams employ different concepts, theories, disclosure measures, and performance indicators. Human capital and resource-based perspectives emphasise employees as productive and strategically valuable resources, while agency and signalling theories explain disclosure as a mechanism for reducing information asymmetry. Stakeholder and legitimacy perspectives instead focus on accountability and organisational acceptance, whereas impression-management theory highlights the strategic presentation of favourable corporate narratives.

Methodologically, the literature has been dominated by content analysis, disclosure indices, archival data, and econometric modelling. More recent studies increasingly apply longitudinal designs, causal-inference techniques,

automated textual analysis, natural language processing, and machine learning. Although this methodological development has strengthened the analytical sophistication of the field, existing studies remain fragmented across reporting formats, industries, geographical settings, and performance measures. Previous reviews have generally addressed intellectual capital or financial performance at a broader level rather than systematically mapping the specific knowledge structure connecting HCD with firm performance (Albertini & Berger-Remy, 2019).

A systematic assessment is therefore required to clarify how this research domain has developed, identify its intellectual foundations and influential contributors, and reveal the relationships among its principal themes. Such an assessment is particularly important as HCD increasingly intersects with sustainability reporting, ESG accountability, corporate governance, workforce analytics, and artificial intelligence.

Accordingly, this study addresses the following research questions:

RQ1. How has research on HCD and firm performance developed in terms of publication trends, methodologies, organisational contexts, performance measures, and theoretical foundations?

RQ2. Which journals, authors, institutions, countries, and landmark publications have shaped the development of the field?

RQ3. What intellectual and thematic structures characterise HCD and firm performance research?

This study makes three contributions. First, it provides a comprehensive profile of the field by examining publication growth, methodological approaches, theoretical foundations, organisational contexts, and performance measures. Second, it

identifies the journals, authors, institutions, countries, and landmark publications that have shaped the development of the literature. Third, it maps the intellectual and thematic structure of the field and identifies established knowledge domains and emerging research directions. By integrating systematic review procedures, bibliometric performance analysis, and science mapping, the study consolidates fragmented research streams and provides a clearer foundation for advancing research on human capital transparency and organisational performance.

METHOD

2.1 Review Design and Protocol

This study employed a systematic literature review supported by bibliometric performance analysis, science mapping, and thematic interpretation to examine the development, intellectual structure, and major research themes of HCD and firm performance research. The systematic review enabled the transparent identification, screening, and synthesis of relevant studies. Bibliometric analysis was used to identify influential publications, authors, journals, institutions, and countries, while science mapping revealed the intellectual and thematic relationships within the field.

The review process followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines to strengthen methodological transparency, reproducibility, and rigour (Tappy & Mandagi, 2026; Lule et al., 2026; Mandagi et al., 2026). The research protocol, including the databases, publication period, search fields, search terms, and eligibility criteria, is presented in Table 1.

Table 1. Research Protocol

Research protocol	Description
Document type	Peer-reviewed journal articles
Databases	Scopus and Web of Science
Time frame	1 January 1982 to 31 December 2025
Search fields	Title, abstract, and keywords
Language	English
Search keywords	TITLE-ABS-KEY (("human capital disclosure" OR "human capital reporting" OR "human resource disclosure" OR "human resource reporting" OR "workforce disclosure" OR "employee disclosure" OR "human capital information" OR "human capital transparency" AND ("firm performance" OR "corporate performance" OR "financial performance" OR "organisational performance" OR "organizational performance" OR "market performance" OR "firm value" OR profitability OR productivity OR "value relevance" OR "cost of capital"))
Subject areas	Business, management, accounting, finance, economics, social sciences, decision sciences.
Inclusion criteria	Peer-reviewed journal articles that substantively examine HCD, human capital reporting, or closely related workforce-disclosure practices in relation to firm-level financial, market, operational, strategic, or organisational outcomes.
Exclusion criteria	Non-peer-reviewed publications, conference papers, book chapters, editorials, reports, theses, dissertations, working papers, retracted articles, articles from discontinued journals, non-English articles, duplicate records, inaccessible full texts, and studies that mention human capital only incidentally without examining disclosure or firm-performance outcomes.

2.2. Data Sources and Search Strategy

The literature search was conducted using Scopus and Web of Science. These databases were selected because of their extensive coverage of peer-reviewed research in accounting, finance, management, economics, human-resource management, corporate governance, sustainability, and intellectual capital. Their standardised bibliographic and citation metadata also support bibliometric performance analysis and science mapping.

The search covered journal articles published between 1 January 1982 and 31 December 2025. The starting year

was selected to capture the early development of human-resource and intellectual-capital reporting and its subsequent evolution into HCD, integrated reporting, sustainability reporting, and workforce-related corporate disclosure.

Search terms were applied to article titles, abstracts, and keywords. The strategy combined terms representing HCD with terms related to firm performance. The principal search expression was structured as follows:

("human capital disclosure" OR "human capital reporting" OR "human resource disclosure" OR "human resource reporting" OR "workforce disclosure" OR "employee disclosure" OR "human capital information" OR "human capital transparency")

AND

("firm performance" OR "corporate performance" OR "financial performance" OR "organisational performance" OR "organizational performance" OR "market performance" OR "firm value" OR profitability OR productivity OR "value relevance" OR "cost of capital")

The syntax was adjusted to meet the technical requirements of each database. The search results were exported with complete bibliographic information, including authors, titles, publication years, source titles, affiliations, abstracts, author keywords, indexed keywords, citation counts, document types, and digital object identifiers.

Records retrieved from the two databases were consolidated into a single dataset. Duplicate records were identified using digital object identifiers, article titles, author names, and publication years. The remaining records

were screened according to the predefined eligibility criteria.

2.3. Eligibility Criteria

Studies were included when they met the following criteria: they were peer-reviewed journal articles published in English between 1985 and 2025, available in full text, and substantively examined HCD or closely related workforce-reporting practices in relation to firm performance.

Eligible studies could investigate disclosures concerning workforce composition, employee competencies, training and development, productivity, remuneration, diversity, turnover, engagement, occupational health and safety, leadership development, succession planning, talent retention, or other human capital indicators. Firm performance could be represented by financial, market-based, operational, strategic, or organisational outcomes, including profitability, return on assets, return on equity, productivity, firm value, stock performance, cost of capital, innovation, growth, resilience, and competitive advantage.

Studies were excluded when they focused exclusively on human-resource practices without examining disclosure or reporting, treated human capital only as a control variable, or did not investigate a firm-level performance outcome. Non-journal documents, non-English publications, retracted articles, records from discontinued journals, duplicate records, inaccessible full texts, and studies outside the relevant disciplinary scope were also excluded.

2.4. Screening and Study Selection

The study-selection process followed the identification, screening, eligibility, and inclusion stages of the PRISMA framework. The initial searches of Scopus and Web of Science

retrieved 146 records. Following the removal of 27 duplicate records, 119 records remained for title and abstract screening.

Records that fell outside the relevant subject areas, were not written in English, or did not meet the specified document-type requirements were removed. The remaining articles were assessed by reviewing their titles, abstracts, and, where necessary, full texts. Studies were excluded when they did not substantively examine HCD, did not include a firm-performance outcome,

or failed to meet the remaining eligibility requirements.

The final sample comprised 86 peer-reviewed journal articles. Two reviewers independently assessed the records against the predefined criteria. Differences in screening decisions were discussed until consensus was reached. This procedure improved screening consistency and reduced the influence of individual judgement. The complete selection process is presented in Figure 1.

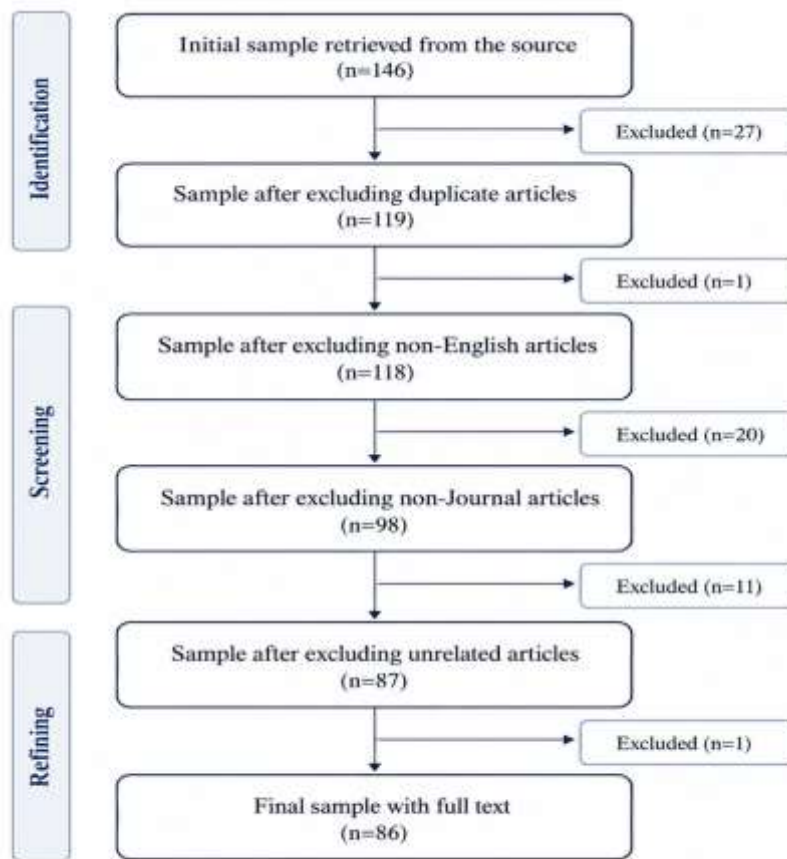


Figure 1. Research Article Selection Process Following PRISMA Guidelines

2.5. Data Extraction and Analysis

Data from the selected articles were extracted using a structured coding template. The extracted bibliographic information included authors, publication year, article title, source title, citation count, institutional affiliation, country, abstract, author keywords, indexed keywords, and digital object identifier. Substantive information was also coded, including theoretical foundation; research methodology; geographical and organizational context.

Citation counts were obtained from the selected database records at the time of final data extraction. Because citation indicators change as databases index new publications and references, the reported values represent a temporal snapshot of scholarly influence rather than fixed measures. Bibliometric performance analysis was conducted to examine the development and influence of the field. The analysis covered annual publication trends, citation patterns, leading journals, productive authors, contributing institutions, influential countries, and landmark publications. Author names, institutional affiliations, country labels, and source titles were standardised to reduce inconsistencies caused by variations in database indexing.

2.6. Science Mapping

VOSviewer version 1.6.20 was used to analyse and visualise the intellectual and thematic structure of HCD and firm performance research. The science-mapping analysis included co-citation analysis, bibliographic coupling, keyword co-occurrence, and overlay visualisation.

Co-citation analysis was used to identify the foundational publications and intellectual traditions that shaped the field. Bibliographic coupling was employed to reveal relationships among

contemporary studies that shared similar reference foundations. Keyword co-occurrence analysis identified the principal concepts and thematic clusters, while overlay visualisation was used to examine the temporal development of research topics. The full-counting method was applied, under which each occurrence and relationship received equal weight. Network relationships were normalised using the association-strength method to account for differences in publication and keyword frequency.

Before analysis, the bibliographic data were cleaned using a thesaurus file. Synonymous terms, abbreviations, spelling variations, and singular and plural forms were harmonised. For example, terms such as HCD, human capital reporting, human resource disclosure, and workforce disclosure were standardised when they represented the same underlying concept. Performance-related terms such as firm performance, corporate performance, financial performance, and organisational performance were also reviewed to minimise unnecessary fragmentation.

Author names, institutional affiliations, source titles, and geographical labels were standardised where necessary. General methodological terms and database-generated keywords that did not contribute substantively to the interpretation of the field were reviewed before the final networks were produced. This procedure improved conceptual clarity and reduced the likelihood that the network structure would be driven by indexing inconsistencies.

2.7. Thematic Analysis and Framework Development

A qualitative thematic interpretation was conducted following

the science-mapping analysis. Its purpose was to explain the substantive meaning of the clusters rather than relying solely on the frequency and proximity of bibliometric items.

The interpretation proceeded in three stages. First, the central and strongly connected publications and keywords within each cluster were examined. Second, the titles, abstracts, and findings of the articles associated with each cluster were reviewed to clarify their conceptual focus. Third, representative studies were identified to support the interpretation and labelling of each knowledge domain.

Particular attention was given to how the literature conceptualised and measured HCD, the firm-performance outcomes investigated, the theoretical perspectives applied, and the contextual conditions influencing the relationship. The analysis also examined the evolution of the field from early human-resource and intellectual-capital reporting toward sustainability-oriented workforce reporting, human capital analytics, employee-related ESG disclosure, and digitally enabled corporate reporting.

The integration of bibliometric mapping and qualitative interpretation enabled the study to identify both the structural relationships within the literature and the broader conceptual meaning of its principal research streams. This approach provided a systematic basis for explaining the intellectual foundations, thematic development, and emerging research directions of HCD and firm performance research.

RESULTS

This section presents the findings from the bibliometric performance analysis, science mapping, and thematic interpretation in accordance with the research questions. First, the

development of HCD and firm performance research is examined through annual publication trends, citation growth, methodological characteristics, theoretical foundations, organisational contexts, and performance measures. Second, the performance analysis identifies the most influential journals, authors, institutions, countries, and landmark publications. Third, science-mapping techniques are used to reveal the intellectual and thematic structure of the field. The thematic interpretation then explains the principal knowledge domains and their relationships within the literature. Finally, limitations in the existing research are organised using the Theories, Contexts, Characteristics, and Methods framework to establish priorities for future investigation.

3.1 Research Profile and Development of HCD and Firm Performance Research (RQ1)

This subsection addresses RQ1 by examining the historical development and general characteristics of research on HCD and firm performance. The analysis considers annual publication output, citation growth, methodological approaches, theoretical foundations, organisational and industry contexts, geographical distribution, disclosure dimensions, and firm-performance measures. Together, these indicators demonstrate how the field has developed from early research on human-resource accounting and intellectual capital reporting into a broader multidisciplinary domain connecting accounting, finance, corporate governance, sustainability reporting, human-resource management, strategic management, and organisational performance.

3.1.1 Annual publication trends

Figure 2 presents the annual development of research on HCD and firm performance. Publication activity remained extremely limited from the early 1980s to the early 2000s, with most years recording no publications or only a

single article. This pattern indicates that the relationship between workforce-related disclosure and organisational performance had not yet emerged as a distinct and systematically investigated research domain.

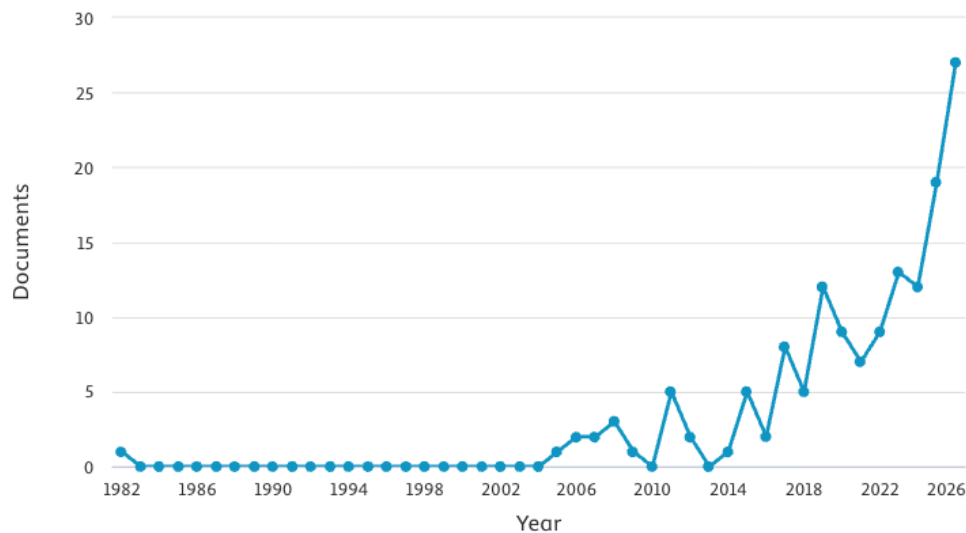


Figure 2. Annual Publication trends of HCD and firm performance research

A gradual increase became visible during the mid-2000s, although annual output remained low and irregular. Research activity expanded more noticeably after 2010, reflecting growing scholarly interest in human capital reporting, intellectual capital, intangible resources, corporate transparency, and the contribution of employee knowledge and capabilities to organisational value creation. Nevertheless, publication output continued to fluctuate considerably across years, suggesting that the field was still fragmented and developing.

A stronger and more sustained growth pattern emerged from the late 2010s onward. Annual publications increasingly reached higher levels, despite several temporary declines. This expansion indicates that HCD has become more closely connected with contemporary research on sustainability reporting, integrated reporting, ESG disclosure, workforce analytics, corporate governance, and firm valuation.

The most pronounced increase occurred in the latest years covered by the dataset. Publication output rose to

approximately 19 articles in 2025 and reached 27 articles in 2026, representing the highest annual output recorded during the review period. As the 2026 figure reflects publications indexed at the time of data extraction, the final annual total may increase further. Overall, Figure 2 demonstrates that research on HCD and firm performance has evolved from a marginal topic into a rapidly expanding multidisciplinary field within accounting, finance, human-resource management, sustainability, and strategic management.

3.1.2 Citation Growth

Figure 3 presents the relationship between annual publication output and citation growth in HCD and firm performance research. Both indicators remained relatively low during the early 2000s, reflecting the limited size and visibility of the field during its initial development. Citation activity began to increase gradually after 2010 and accelerated more clearly from the late 2010s onward, indicating growing scholarly recognition of research linking workforce-related disclosure with organisational outcomes.

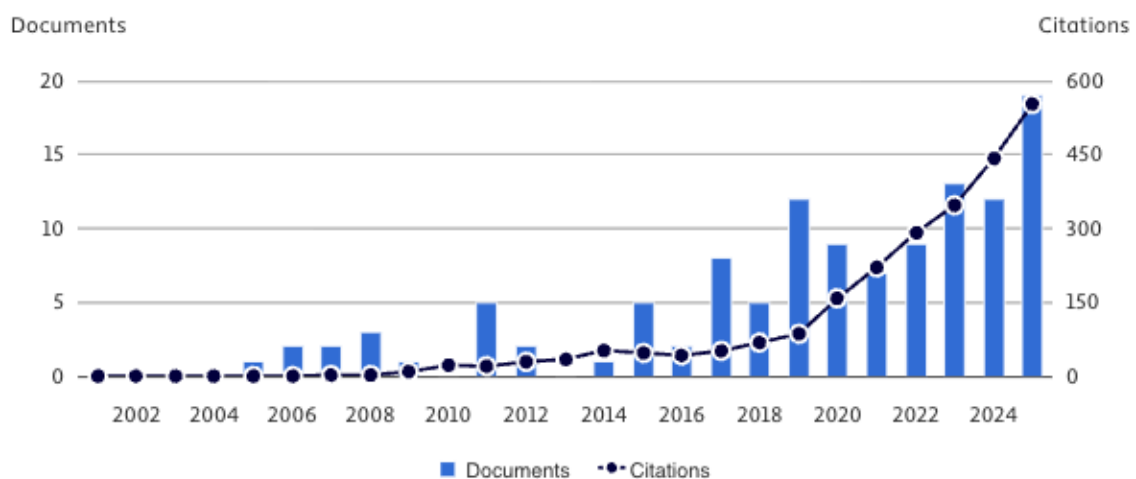


Figure 3. Citation growth in HCD and firm performance research

Annual publication output fluctuated throughout the observation

period. Several increases were followed by temporary declines, particularly

during the early 2020s, before publication activity recovered strongly in the most recent years. In contrast, citation growth followed a more consistent upward trajectory. This pattern suggests that the intellectual influence of the field was not determined solely by the number of articles published in a particular year. Earlier studies continued to accumulate citations and provide conceptual, theoretical, and empirical foundations for subsequent research.

Citation growth became especially pronounced after 2018. The number of citations increased rapidly alongside the expansion of research on intellectual capital reporting, sustainability disclosure, integrated reporting, ESG practices, workforce transparency, and intangible value creation. By the end of the observation period, citations approached 600, representing the highest level recorded in the dataset.

The simultaneous increase in publications and citations indicates that HCD and firm performance research is progressing from a fragmented emerging topic toward a more established multidisciplinary research domain. Its

growing influence reflects increasing academic and organisational interest in workforce capabilities, employee-related disclosure, corporate transparency, human capital investment, and the contribution of intangible resources to financial, market, and operational performance.

3.1.3 Methodological characteristics

As shown in Table 2, quantitative approaches overwhelmingly dominate research on HCD and firm performance, accounting for 78 articles or 89.7% of the reviewed literature. The most frequently used methodology was content analysis and disclosure scoring or modelling, represented by 36 articles or 41.4%. These studies commonly developed HCD indices from annual reports, sustainability reports, integrated reports, corporate websites, and other organisational communications. The resulting disclosure measures were typically analysed using regression, structural equation modelling, or related statistical techniques to examine their association with financial, market, and organisational outcomes.

Table 2. Methodological Characteristics of the Reviewed Studies

Research Strategy	Methodology	Total Articles	Sample Studies
Quantitative	Content analysis and disclosure scoring/modelling	36	Serpeninova et al. (2025); Said et al. (2018); Bogdan et al. (2017); Beretta et al. (2019); Hassan et al. (2019)
	Archival econometric, causal, and analytical modelling	33	Borodin et al. (2019); Liu and Arthurs (2019); Mardini and Lahyani (2022); Chowdhury and Doukas (2022); Li et al. (2022)
	Survey/questionnaire with statistical modelling	4	Unegbu (2016); Mariappanadar (2025); Tuan et al. (2020); Mariappanadar and Kairouz (2017)

Research Strategy	Methodology	Total Articles	Sample Studies
	Computational text analytics and machine learning	3	Supsermpol et al. (2025); He and Wang (2025); Xie et al. (2025)
	Experimental research	1	Rodgers et al. (2020)
	Meta-analysis	1	Albertini and Berger-Remy (2019)
Qualitative	Case study and qualitative analysis	4	Lozano and Carrasco Gallego (2011); Azadzanjani et al. (2025); Aravossis et al. (2008); Pirogova et al. (2020)
	Conceptual and theoretical analysis	3	Gamerschlag and Moeller (2011); Krausert (2018); Massingham et al. (2019)
Mixed methods	Mixed-method design	2	Eyo et al. (2025); Abeysekera (2011)

Archival econometric, causal, and analytical modelling was the second-largest category, comprising 33 articles (37.9%), typically using firm-level secondary data and techniques such as OLS, panel regression, dynamic estimation, instrumental variables, difference-in-differences, and regression discontinuity to assess links between HCD and profitability, firm value, market performance, productivity, and cost of capital. Survey research accounted for four articles (4.6%), while computational text analytics and machine learning appeared in three (3.4%); experimental research and meta-analysis were each represented by one article (1.1%). Qualitative research comprised seven articles (8.0%), including four case-based studies and three conceptual analyses, whereas mixed-method designs were least common, with only two articles (2.3%). Overall, the field remains heavily dependent on archival data, disclosure indices, and statistical modelling, indicating a need for more interviews,

longitudinal case studies, experiments, computational approaches, and mixed-method designs to explain the organisational processes through which human capital reporting affects firm performance.

3.1.4 Theoretical foundations

Table 3 shows that research on HCD and firm performance is predominantly grounded in strategic management, corporate governance, and information disclosure perspectives. The Resource-Based View or Resource-Based Theory (RBV/RBT) is the most frequently applied theoretical lens, reflecting the assumption that employees' knowledge, skills, competencies, and experience constitute valuable strategic resources that can enhance organizational performance and competitive advantage. Human Capital Theory complements this perspective by explaining how investments in employee capabilities generate economic value and contribute to firm-level outcomes.

Table 3. Most used theories

Theory	Sample Studies
Resource-Based View/Theory (RBV/RBT)	Eyo et al. (2025); Liu & Arthurs (2019); Nadeem et al. (2018); Essel (2025); Mariappanadar (2025); Mkumbuzi (2015); Albertini & Berger-Remy (2019).
Agency Theory	Mardini & Lahyani (2022); Singhanian & Panda (2025); Krausert (2018); Mkumbuzi (2015).
Resource Dependence Theory (RDT)	Liu & Arthurs (2019); Nadeem et al. (2018); Evangelista et al. (2024).
Signaling Theory	Lin et al. (2012); Singhanian & Panda (2025); Mkumbuzi (2015).
Stakeholder Theory (ST)	Eyo et al. (2025); Aspal et al. (2023); Lin et al. (2012).
Human Capital Theory (HCT)	Eyo et al. (2025); Evangelista et al. (2024).
Impression Management Theory	Beretta et al. (2019); Mardini & Lahyani (2022).
Organizational Learning Theory	Nadeem et al. (2018); Massingham et al. (2019).

Agency Theory is also widely employed to explain how HCD can reduce information asymmetry between managers, shareholders, and other capital-market participants. Similarly, Signaling Theory suggests that firms disclose information about their human capital to communicate organizational quality, future potential, and competitive strength to external stakeholders. Stakeholder Theory broadens this explanation by emphasizing firms' responsibility to provide relevant human capital information to employees, investors, regulators, customers, and other stakeholder groups.

Resource Dependence Theory highlights the importance of human expertise, managerial capabilities, and external relationships in securing critical organizational resources. Impression Management Theory provides a more critical perspective, suggesting that firms may selectively present human capital information to shape stakeholders' perceptions and reinforce a favourable corporate image. Organizational

Learning Theory further explains how employee knowledge, learning processes, and intellectual resources support innovation, adaptability, and sustained performance. Overall, the theoretical foundations demonstrate that research in this field primarily views HCD as a mechanism for communicating strategic resources, reducing information asymmetry, addressing stakeholder expectations, and explaining differences in firm performance

3.2. Bibliometric Performance of HCD and Firm Performance Research (RQ2)

3.2.1 Leading journals in the field

Table 4 shows that research on HCD and firm performance is concentrated in journals covering intellectual capital, corporate responsibility, accounting, sustainability, finance, management, and technological change. This distribution reflects the multidisciplinary nature of

the field and its links with financial reporting, intangible assets, corporate transparency, workforce management, and organisational value creation. In terms of publication volume, the Journal of Intellectual Capital is the leading outlet, with nine articles, indicating the central role of intellectual capital research in developing the conceptual and empirical foundations of HCD. The

Social Responsibility Journal ranks second with four articles, highlighting the growing integration of workforce-related reporting with corporate responsibility and sustainability. Management Science, Sustainability, and the International Journal of Learning and Intellectual Capital each published three articles.

Table 4. Most Influential Journals by Number of Articles Published in This Field

Source Title	Publisher Name	TA	TC
Journal of Intellectual Capital	Emerald Publishing	9	700
Social Responsibility Journal	Emerald Publishing	4	97
Management Science	INFORMS	3	243
Sustainability (Switzerland)	MDPI	3	64
International Journal of Learning and Intellectual Capital	Inderscience Publishers	3	11
Technological Forecasting and Social Change	Elsevier	2	155
Journal of Accounting and Public Policy	Elsevier	2	62
Applied Economics	Routledge	2	34
Asian Review of Accounting	Emerald Publishing	2	32

Publication volume does not necessarily correspond directly with citation influence. The Journal of Intellectual Capital records both the highest publication output and the largest cumulative citation count, with 700 citations, confirming its dominant role in shaping the field. Management Science also demonstrates substantial scholarly influence, accumulating 243 citations from only three articles. Similarly, Technological Forecasting and Social Change records 155 citations from two articles, suggesting that research connecting human capital with innovation, technology, and organisational transformation has attracted considerable academic attention. The presence of the Journal of Accounting and Public Policy, Applied Economics, and the Asian Review of Accounting further demonstrates that HCD research extends beyond

intellectual capital and sustainability into accounting regulation, economic performance, capital-market outcomes, and corporate reporting.

3.2.2. Most productive and influential authors

Figure 4 shows that authorship in research on HCD and firm performance is relatively dispersed. Raimo, N. and Vitolla, F. are the most productive authors, with four documents each, followed by Lajili, K., with three documents. The remaining authors presented in the figure contributed two documents each. The relatively narrow difference in publication output suggests that the field has developed through contributions from several scholars rather than being dominated by a single prolific researcher. This pattern reflects a developing and fragmented knowledge base, offering opportunities for sustained

research programmes, greater cross-institutional collaboration, and the formation of more established scholarly networks. However, because the figure is based on document counts, it primarily

represents author productivity; author influence should be further assessed using citation counts, co-citation frequency, or total link strength.

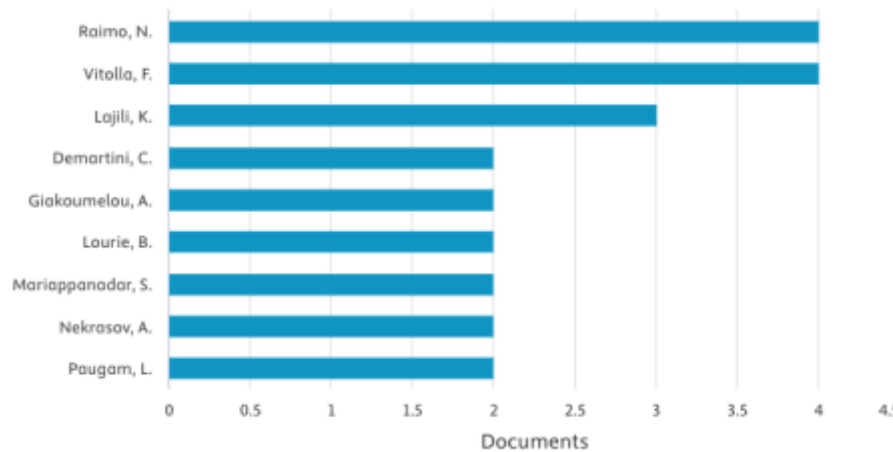


Figure 4. Most Productive Authors in HCD and Firm Performance Research

3.2.3. Leading countries

Figure 5 shows that China is the leading contributor to research on HCD and firm performance, with 17 documents, followed by Italy with 14 documents and Indonesia with 12 documents. The United Kingdom and United States each contributed nine

documents, while France and India recorded eight documents each. Australia and Canada contributed seven and six documents, respectively. An additional eight publications were classified as “undefined,” indicating that country affiliation information was unavailable or could not be assigned.

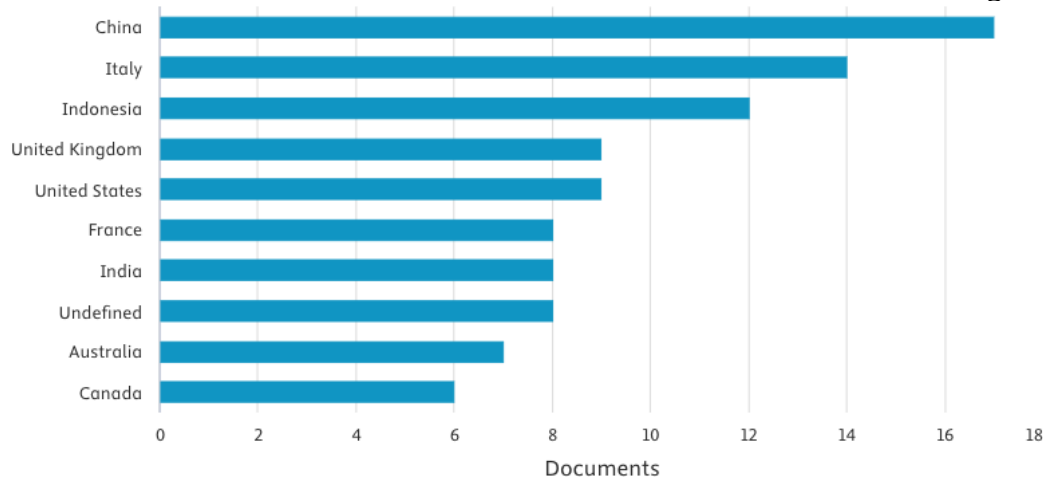


Figure 5. Leading Countries in HCD and firm performance Research

The distribution demonstrates that research in this field has attracted contributions from both developed and emerging economies. China’s leading position may reflect growing scholarly

attention to intellectual capital, corporate reporting, and firm performance within rapidly developing capital markets. The substantial contributions from Italy and Indonesia further suggest that the topic is

particularly relevant in institutional contexts where non-financial disclosure, knowledge-based resources, and corporate transparency are receiving increasing attention. Nevertheless, the concentration of publications among a limited number of countries indicates opportunities for broader geographical representation and more extensive international collaboration.

3.2.4. Leading Institutions

Figure 6 shows that institutional contributions to research on HCD and

firm performance are relatively dispersed. Università degli Studi di Torino, the University of International Business and Economics, the University of Ottawa, and Universitas Airlangga are the most productive institutions, with three documents each. They are followed by King Abdulaziz University, Turun yliopisto, Università degli Studi di Salerno, the University of California, Irvine, The Hong Kong Polytechnic University, and Australian Catholic University, each contributing two documents.

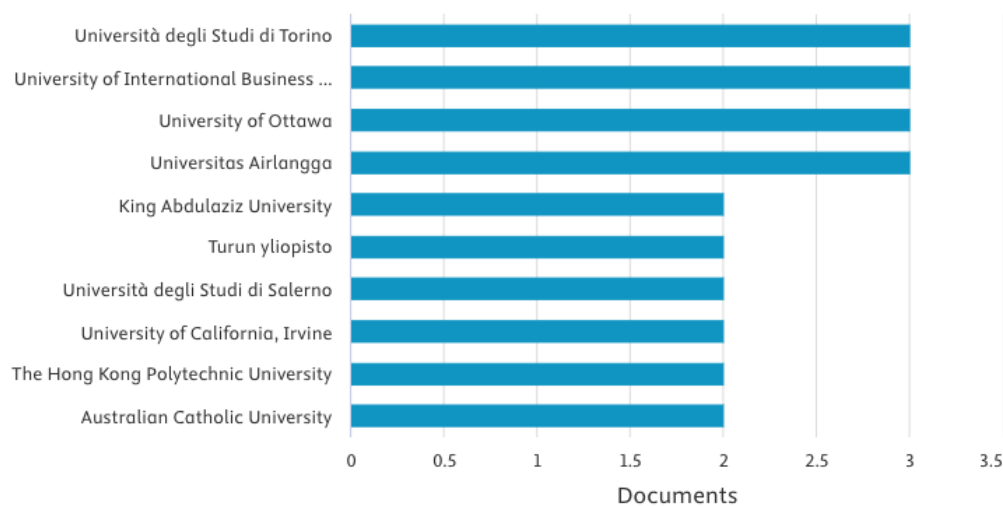


Figure 6. Leading Institutions in HCD and Firm Performance Research

The narrow difference in publication output indicates that no single institution dominates the field. Instead, the literature has developed through contributions from universities across Europe, Asia, North America, Australia, and the Middle East. This geographical and institutional diversity demonstrates the broad relevance of HCD and firm performance across different economic and regulatory settings. However, the relatively low number of publications per institution also suggests that research remains fragmented, highlighting opportunities for sustained institutional research programmes and stronger international collaboration. As the figure is based on document counts, it primarily

represents institutional productivity, rather than influence.

3.2.5 Landmark publications

Table 5 identifies the most highly cited publications underpinning research on HCD and firm performance. These studies illustrate the field's development across non-financial reporting, intellectual capital, corporate performance, integrated reporting, ESG disclosure, employee-related resources, and digital disclosure. Stolowy and Paugam's (2018) study is the most highly cited publication, providing an influential examination of the expansion of non-financial reporting and its relationship with broader corporate

accountability practices. Bharathi Kamath (2008) and Mehralian et al. (2012) established important empirical foundations by demonstrating the contribution of intellectual capital to corporate performance in the Indian and

Iranian pharmaceutical industries. Together, these studies reinforced the strategic importance of human, structural, and relational capital in explaining productivity, profitability, and organizational value.

Table 5. Top 10 Landmark Publications on HCD and Firm Performance

Title	Authors	Year	Source Title	Cited by
The expansion of non-financial reporting: an exploratory study	Stolowy and Paugam	2018	Accounting and Business Research	273
Intellectual capital and corporate performance in Indian pharmaceutical industry	Bharathi Kamath	2008	Journal of Intellectual Capital	229
Intellectual capital and corporate performance in Iranian pharmaceutical industry	Mehralian et al.	2012	Journal of Intellectual Capital	160
Intellectual capital disclosure in integrated reports: The effect on firm value	Salvi et al.	2020	Technological Forecasting and Social Change	137
Does environmental, social and governance performance influence intellectual capital disclosure tone in integrated reporting?	Beretta et al.	2019	Journal of Intellectual Capital	115
Human capital-driven acquisition: Evidence from the inevitable disclosure doctrine	Chen et al.	2021	Management Science	111
The importance of intellectual capital for firm performance: Evidence from Australia	Nadeem et al.	2018	Australian Accounting Review	93
Employee turnover and firm performance: Large-sample archival evidence	Li et al.	2022	Management Science	93
Integrated reporting in UK higher education institutions	Hassan et al.	2019	Sustainability Accounting, Management and Policy Journal	86
The use of Web sites as a disclosure platform for corporate performance	Cormier et al.	2009	International Journal of Accounting Information Systems	83

Subsequent landmark studies broadened the field from the measurement of intellectual capital toward its disclosure, governance, and organizational consequences. Cormier et al. (2009) demonstrated the growing role of corporate websites as platforms for communicating financial, governance, social, and intellectual-capital information. Nadeem et al. (2018) provided further evidence of the importance of intellectual capital for firm performance, while Hassan et al. (2019) extended the discussion to integrated reporting within higher education institutions. These contributions indicate that HCD is relevant across both corporate and public-sector organizational settings.

More recent highly cited publications reflect an increasing emphasis on integrated reporting, ESG

performance, strategic human capital, and labor-related outcomes. Beretta et al. (2019) examined how environmental, social, and governance performance shapes the tone of intellectual capital disclosure, whereas Salvi et al. (2020) showed that intellectual capital disclosure in integrated reports can influence firm value. Chen et al. (2021) demonstrated the strategic importance of human capital in acquisition decisions, while Li et al. (2022) linked employee turnover with operating performance, stock returns, and organizational uncertainty. Collectively, these landmark publications show that the field has evolved from examining intellectual capital as an intangible organizational resource toward investigating how human capital is disclosed, governed, acquired, retained,

and the inevitable disclosure doctrine demonstrate that human capital information is also relevant to strategic transactions, labour-related decisions, and capital-market evaluations.

3.3.2 Thematic clusters

Table 6 consolidates eight thematic clusters that shape the intellectual structure of research on HCD and firm performance. The clusters cover disclosure measurement,

governance, intellectual-capital components, organisational performance, sustainability, computational analysis, capital-market consequences, and employee-related strategic risks. Their interconnections show that the field extends beyond conventional accounting disclosure and increasingly incorporates strategic management, corporate governance, ESG reporting, artificial intelligence, and intangible-resource perspectives..

Table 6. Key thematic clusters in HCD and firm performance research

Cluster	Items (n)	Keywords	Issues/Thematic Focus	Sample Authors
1	10	disclosure, content analysis, firm performance, firm value, knowledge management, cost of capital, integrated reporting, integrated thinking, impression management, social media	Corporate disclosure analysis and firm-performance consequences	Beretta et al. (2019); Hassan et al. (2019); Li et al. (2022); Massingham et al. (2019)
2	12	artificial intelligence, greenwashing, large language model, decision making, digitization, environmental economics, industrial performance, sustainability, sustainable development, China, green economy, innovation	AI-enabled sustainability, green innovation, and environmental performance	He and Wang (2025); Mariappanadar (2025); Tuan et al. (2020); Pirogova et al. (2020)
3	12	human capital, corporate social responsibility, performance assessment, corporate performance, corporate sustainability, non-financial disclosure, CSR disclosure, equity, ESG disclosure, human resource, human resource accounting, information disclosure	Human capital, corporate responsibility, and organisational performance	Serpeninova et al. (2025); Eyo et al. (2025); Lin et al. (2012); Evangelista et al. (2024)
4	11	corporate governance, intellectual capital disclosure, performance, banks, human capital management, HCD, financial analysis, intangibles, board of directors, disclosure, regression analysis	Governance mechanisms and human and intellectual capital disclosure	Said et al. (2018); Bogdan et al. (2017); Krausert (2018); Xie et al. (2025)
5	6	voluntary disclosure, human capital efficiency, structural capital efficiency, capital structure, VAIC, capital market	Voluntary reporting and capital-efficiency measurement	Essel (2025); Mkumbuzi (2015); Azadzanjani et al. (2025)
6	6	personnel, human capitals, inevitable disclosure doctrine, investments, commerce, mergers and acquisitions	Employee mobility, trade-secret protection, and corporate transactions	Chowdhury and Doukas (2022); Li et al. (2022); Rodgers et al. (2020)
7	3	intellectual capital, intangible assets, business performance	Intellectual capital and intangible resources as drivers of business performance	Rodgers et al. (2020); Albertini and Berger-Remy (2019); Essel (2025)
8	3	intellectual capital disclosures, relational capital, structural capital	Structural and relational dimensions of intellectual capital reporting	Mardini and Lahyani (2022); Singhania and Panda (2025); Albertini and Berger-Remy (2019)

Cluster 1: Corporate Disclosure Analysis and Firm-Performance Consequences. The first cluster centres

on how corporate disclosures are measured and linked to organisational and market outcomes. Studies in this

stream commonly use content analysis to assess the extent, quality, tone, and credibility of human and intellectual capital information in annual, integrated, and sustainability reports. Beretta et al. (2019) demonstrate how disclosure tone may reflect firms' broader ESG performance, while Hassan et al. (2019) show that integrated reporting can connect non-financial resources with organisational accountability. Li et al. (2022) provide evidence that workforce-related conditions have measurable consequences for firm performance, whereas Massingham et al. (2019) position intellectual capital information within strategic performance systems. Collectively, the cluster indicates that HCD is increasingly treated as a decision-relevant information mechanism that may affect firm value, financing conditions, stakeholder perceptions, and organisational performance.

Cluster 2: AI-Enabled Sustainability, Green Innovation, and Environmental Performance. The second cluster reflects an emerging intersection between human capital reporting, sustainability, artificial intelligence, and green economic transformation. Its keywords indicate growing attention to large language models, greenwashing detection, innovation, environmental economics, and sustainable development. He and Wang (2025) illustrate how artificial intelligence can be used to identify misleading sustainability communication, while Mariappanadar (2025) emphasises the role of human capital in implementing sustainability-oriented business strategies. Tuan et al. (2020) examine organisational factors influencing sustainability disclosure, and Pirogova et al. (2020) connect intellectual resources with corporate reporting and performance. This cluster

suggests that the field is moving toward technologically enabled evaluation of workforce and sustainability claims, with computational tools increasingly used to assess the credibility and strategic value of non-financial information.

Cluster 3: Human Capital, Corporate Responsibility, and Organisational Performance. The third cluster positions human capital as a central component of corporate responsibility and long-term organisational performance. It links HCD with employee development, workforce accounting, ESG information, corporate sustainability, and non-financial reporting. Serpeninova et al. (2025) show how transparent workforce reporting supports ethical governance and corporate responsibility, while Eyo et al. (2025) connect human-resource accounting practices with corporate performance. Lin et al. (2012) demonstrate that the performance implications of HCD may depend on organisational size and knowledge intensity. Evangelista et al. (2024) further associate governance diversity with the social dimension of ESG reporting. Together, these studies show that workforce information is increasingly regarded as evidence of responsible management and as an indicator of firms' capacity to generate sustainable organisational value.

Cluster 4: Governance Mechanisms and Human and Intellectual Capital Disclosure. The fourth cluster examines the governance structures that shape the quantity, quality, and usefulness of human and intellectual capital information. Key themes include boards of directors, corporate governance, disclosure practices, banking, human-capital management, and financial analysis. Said et al. (2018) demonstrate that

governance and human-governance mechanisms influence management commentary disclosure, whereas Bogdan et al. (2017) link intellectual-capital reporting with financial performance. Krausert (2018) explains how capital-market intermediaries can influence strategic human-capital decisions, and Xie et al. (2025) introduce automated textual methods for quantifying HCD. The cluster therefore suggests that disclosure outcomes are shaped not only by reporting standards but also by board oversight, managerial incentives, ownership structures, and information-processing capabilities.

Cluster 5: Voluntary Reporting and Capital-Efficiency Measurement. The fifth cluster focuses on voluntary disclosure and the measurement of human and structural capital efficiency. Its central concepts include voluntary reporting, capital structure, value-added intellectual coefficient measures, human-capital efficiency, and capital-market outcomes. Essel (2025) examines how intellectual capital contributes to firm performance under different ownership and management conditions, while Mkumbuzi (2015) links intangible disclosure and governance with corporate reputation. Azadzanjani et al. (2025) develop a context-specific framework for sustainability and intellectual-capital reporting. This cluster highlights the continuing importance of efficiency-based models such as VAIC, particularly in studies seeking to quantify how human and structural capital contribute to value creation when conventional accounting measures remain inadequate.

Cluster 6: Employee Mobility, Trade-Secret Protection, and Corporate Transactions. The sixth cluster addresses the strategic risks associated with employee knowledge, mobility, investment, and corporate transactions.

It connects human capital with trade-secret protection, mergers and acquisitions, personnel dependence, and investment decisions. Chowdhury and Doukas (2022) show that legal protection for proprietary knowledge can affect corporate financial policies, while Li et al. (2022) demonstrate that employee turnover has material consequences for firm performance. Rodgers et al. (2020) further connect human and social capital with investment-risk assessment. The cluster reveals that employees are not only productive resources but also carriers of proprietary knowledge whose movement can affect competitiveness, valuation, transaction risk, and organisational continuity.

Cluster 7: Intellectual Capital and Intangible Resources as Drivers of Business Performance. The seventh cluster represents the foundational intellectual-capital perspective of the field. It links intangible assets, intellectual capital, and business performance, emphasising that organisational value increasingly depends on resources not fully recognised in financial statements. Albertini and Berger-Remy (2019) provide meta-analytic evidence of the relationship between intellectual capital and financial performance, while Essel (2025) shows how intellectual resources affect manufacturing-firm outcomes. Rodgers et al. (2020) further demonstrate that intangible relational and knowledge resources influence strategic decision-making. This cluster provides the broad theoretical basis for viewing human capital as a value-generating asset rather than merely a labour cost.

Cluster 8: Structural and Relational Dimensions of Intellectual Capital Reporting. The eighth cluster concentrates on the internal components

of intellectual capital, particularly structural capital, relational capital, and their disclosure. Mardini and Lahyani (2022) show that corporate governance and firm performance influence intellectual-capital information presented in executive reporting, while Singhania and Panda (2025) examine how intellectual-capital disclosure contributes to firm performance in the context of technological transformation. Albertini and Berger-Remy (2019) further demonstrate that the value of intellectual capital arises from the combined contribution of human, structural, and relational resources. This cluster indicates that HCD cannot be analysed in isolation because employee knowledge generates value through organisational systems, routines, technologies, stakeholder relationships, and institutional infrastructure.

3.3.3 Evolution of research themes

The evolution of HCD and firm performance research reflects a broader

shift in how organizations understand, measure, and communicate the value of employee knowledge, skills, capabilities, and relationships. Figure 8 indicates three broad developmental phases characterized by changes in dominant themes, analytical methods, and theoretical perspectives. The field has progressed from an initial focus on the valuation and voluntary disclosure of intangible resources, through a period emphasizing corporate governance, integrated reporting, and financial performance, toward a more recent research agenda incorporating sustainability, ESG, digital transformation, artificial intelligence, and advanced textual analytics. Across these phases, intellectual capital, human capital, disclosure quality, firm performance, and corporate reporting remain central themes, confirming that the field has developed at the intersection of accounting, strategic management, corporate governance, sustainability, and information systems..

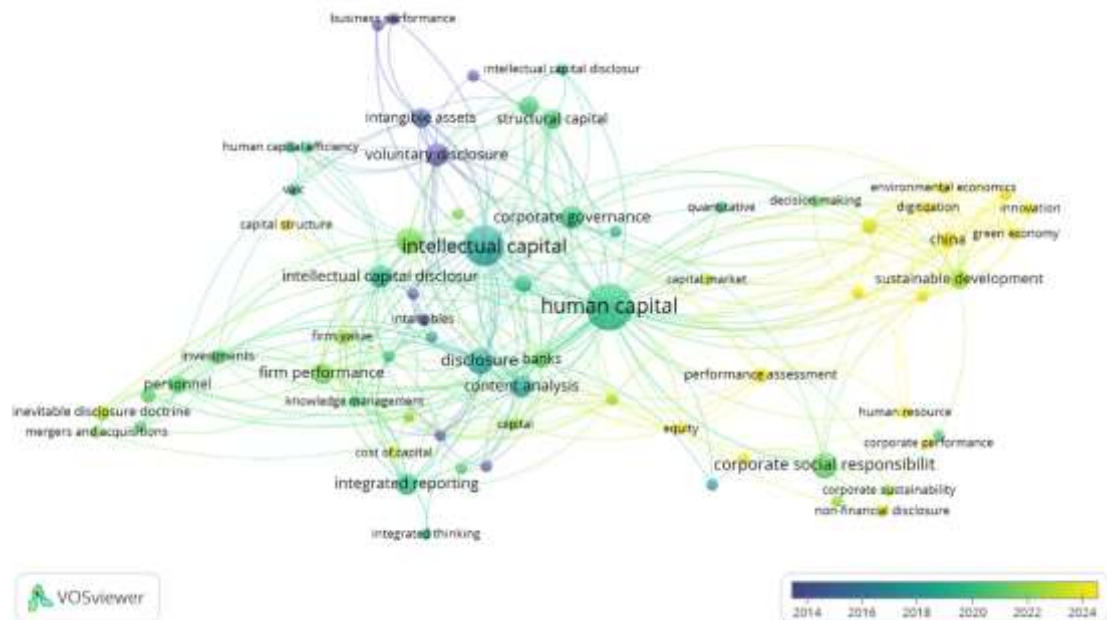


Figure 8. Overlay visualization of HCD and Firm Performance research

Foundational Valuation and Voluntary Disclosure Phase (1982–2014)

The foundational phase was dominated by corporate performance measurement, intangible assets, intellectual capital, voluntary disclosure, human capital reporting, and the value relevance of non-financial information. Early research was primarily concerned with the limitations of traditional accounting systems in recognizing and measuring employee knowledge, competencies, and other intangible resources. Human capital was generally viewed as an economically valuable but insufficiently reported organizational asset.

Arrington et al. (1982) provided an early contribution to corporate performance measurement by examining alternative approaches to evaluating multidimensional performance criteria. Research later shifted toward the capital-market relevance of human capital information. Lajili and Zéghal (2005, 2006) demonstrated growing interest in whether voluntary labor-cost and HCDs were associated with firm valuation and market performance. Flöstrand (2006) further examined intellectual capital indicators from the perspective of financial analysts, highlighting the increasing demand for non-financial information among capital-market participants.

The relationship between intellectual capital and firm performance subsequently became more prominent. Bharathi Kamath (2008) examined the contribution of intellectual capital to corporate performance in the Indian pharmaceutical industry, while Dammak et al. (2008) investigated organizational determinants of intellectual capital disclosure. Cormier et al. (2009) extended the disclosure discussion to corporate websites, showing that digital

platforms could communicate human, intellectual, social, financial, and governance-related performance information to external stakeholders.

During the early 2010s, HCD was increasingly conceptualized as a mechanism for strengthening corporate reputation, reducing information gaps, and improving organizational performance. Gamerschlag and Moeller (2011) developed a model linking human capital reporting with financial outcomes and shareholder value. Lin et al. (2012) applied signaling and stakeholder perspectives to demonstrate that HCD could positively affect organizational performance, although the relationship depended on knowledge intensity and organizational size. Mehralian et al. (2012) similarly examined the effects of human, structural, and physical capital on profitability, productivity, and market valuation. Overall, this phase established the economic relevance of human capital information and positioned disclosure as a potential bridge between intangible organizational resources and observable performance outcomes.

Governance, Integrated Reporting, and Performance Consolidation Phase (2015–2020)

The second phase marked a consolidation of research around corporate governance, intellectual capital disclosure quality, integrated reporting, corporate reputation, financial performance, and non-financial reporting. Rather than focusing only on whether firms disclosed human capital information, studies increasingly examined why disclosure levels differed, how governance mechanisms influenced reporting, and whether disclosure generated measurable financial or reputational benefits.

Research during this period drew greater attention to the costs and

strategic motivations associated with disclosure. Kamardin et al. (2015) examined the proprietary costs of intellectual capital reporting, while Mkumbuzi (2015) linked corporate governance and intangible-asset disclosure with corporate reputation. Scaltrito (2016) investigated firm-specific determinants of voluntary disclosure, and Lim et al. (2017) examined changes in disclosure quality among innovative firms. Bogdan et al. (2017) provided evidence that intellectual capital disclosure, particularly human and relational capital disclosure, could contribute to subsequent corporate performance.

The expansion of non-financial and integrated reporting further broadened the field. Stolowy and Paugam (2018) documented the increasing scope of non-financial reporting, including corporate social responsibility, environmental, integrated, and sustainability reporting. Krausert (2018) connected HCD with corporate governance, capital-market analysis, and strategic human resource management. These developments repositioned human capital information as part of a wider corporate-reporting system rather than as an isolated disclosure category.

By 2019 and 2020, research had become more theoretically and methodologically diverse. Beretta et al. (2019) examined how environmental, social, and governance performance affected the tone of intellectual capital disclosure in integrated reports. Hassan et al. (2019) used Institutional Theory to explain the adoption of integrated reporting, while Massingham et al. (2019) combined organizational learning, the Balanced Scorecard, and systems thinking to strengthen the reporting of learning and growth resources. Albertini and Berger-Remy

(2019) synthesized evidence on the intellectual capital-financial performance relationship through meta-analysis.

Research also increasingly examined specific capital-market and organizational outcomes. Liu and Arthurs (2019) explored how dependence on key employees affected initial public offering performance, while Cardi et al. (2019) assessed the post-IPO consequences of intellectual capital disclosure. Salvi et al. (2020) demonstrated that intellectual capital disclosure in integrated reports was associated with firm value. Gutiérrez et al. (2020) extended the information environment beyond formal corporate reports by examining whether online job postings provided useful human capital signals to investors. Overall, this phase consolidated the field around governance, reporting quality, integrated reporting, and the financial consequences of HCD.

Sustainability, Strategic Human Capital, and Digital Analytics Expansion Phase (2021–2025)

The most recent phase is characterized by the integration of HCD with sustainability, ESG performance, corporate social responsibility, digital transformation, artificial intelligence, diversity and inclusion, green innovation, and advanced data analytics. Human capital is increasingly viewed not only as a source of financial performance but also as a strategic capability supporting organizational resilience, ethical governance, environmental responsibility, and long-term value creation.

Research during this phase expanded beyond conventional annual-report disclosure. Chen et al. (2021) examined human capital-driven acquisitions using evidence from the

Inevitable Disclosure Doctrine, while Raimo et al. (2021) applied Legitimacy Theory to explain corporate social responsibility disclosure. Li et al. (2022) used large-sample archival evidence to connect employee turnover with operating performance, stock returns, and uncertainty. Salvi et al. (2022) further examined the financial consequences of HCD within integrated reporting, including its implications for firm value, performance, and cost of capital.

The communication channels used for intellectual and HCD also became more diverse. Bryl et al. (2022) investigated intellectual capital disclosure through Twitter, demonstrating the growing relevance of social media as a stakeholder communication platform. Filip et al. (2022) examined the disclosure of key value drivers in merger and acquisition announcements, while studies on managerial ability, corporate governance, and intellectual capital reporting strengthened the connection between managerial characteristics and disclosure decisions (Mardini & Lahyani, 2022; Rajabalizadeh & Oradi, 2022).

Sustainability and ESG concerns became increasingly prominent from 2023 onward. Zhang and Liu (2023) linked ESG performance and human capital with green innovation, while Aspal et al. (2023) examined the roles of human capital, corporate reputation, and other intangible resources in the relationship between corporate social responsibility disclosure and financial performance. Lajili (2023) applied a contingency perspective to explain variation in human capital information and human resource practices. Research also extended to green intellectual capital, sustainable finance, corporate

social performance, and the social dimensions of ESG reporting.

The latest studies reflect a strong methodological shift toward digital and data-intensive approaches. Research now employs natural experiments, large-scale archival data, textual analysis, machine learning, and artificial intelligence to measure disclosure and predict organizational outcomes. He and Wang (2025), for example, used a large language model to examine whether artificial intelligence could help identify and reduce corporate greenwashing. Wu et al. (2025) investigated how digital transformation promoted green innovation through mechanisms that included environmental information disclosure. Xie et al. (2025) applied textual analysis to quantify HCD in Chinese corporate reports, while Supsermpol et al. (2025) combined machine learning and sentiment analysis to extract human-capital-related signals from IPO documents.

Recent studies have also connected HCD with ethical governance, corporate sustainability, Industry 4.0, and sustainable human resource management. Serpeninova et al. (2025) evaluated the transparency of HCD in banking within the context of corporate social responsibility and ethical governance. Singhania and Panda (2025) examined intellectual capital disclosure and firm performance in the context of the Fourth Industrial Revolution, while Mariappanadar (2025) positioned human capital as a capability for implementing corporate sustainability strategies. Collectively, this phase demonstrates that the field is moving beyond conventional disclosure-performance relationships toward an interdisciplinary agenda incorporating sustainability, technology, strategic human capital, and responsible corporate governance.

Table 7. Evolution of HCD and Firm Performance Research

Research Phase	Period	Dominant Keywords	Core Methodologies	Dominant Theories and Frameworks
Foundational Valuation and Voluntary Disclosure Phase	1982–2014	Human capital, intellectual capital, intangible assets, voluntary disclosure, corporate performance, market value, human capital reporting	Conceptual models, case studies, disclosure indices, content analysis, surveys, correlation and regression analysis	Human Capital Theory, Resource-Based View, Stakeholder Theory, Signaling Theory, labor economics approach, stockholder-interests perspective
Governance, Integrated Reporting, and Performance Consolidation Phase	2015–2020	Corporate governance, intellectual capital disclosure, disclosure quality, integrated reporting, financial performance, corporate reputation, non-financial reporting	Content and tone analysis, panel regression, SEM and PLS-SEM, longitudinal analysis, meta-analysis, comparative studies	Agency Theory, Resource-Based Theory, Resource Dependence Theory, Institutional Theory, Impression Management Theory, Proprietary Cost Theory, Organizational Learning Theory, Balanced Scorecard
Sustainability, Strategic Human Capital, and Digital Analytics Expansion Phase	2021–2025	ESG, corporate sustainability, CSR disclosure, green innovation, human resources, diversity and inclusion, digital transformation, artificial intelligence, textual analysis	Large-sample archival analysis, natural experiments, panel-data models, GMM, textual and sentiment analysis, machine learning, large language models	Human Capital Theory, Resource-Based View, Stakeholder Theory, Signaling Theory, Legitimacy Theory, Contingency Theory, Strategic Choice Theory, sustainable HRM, ESG and sustainability-reporting frameworks

DISCUSSION

The findings indicate that research on HCD and firm performance has evolved through three interconnected phases: the valuation of intangible resources and voluntary disclosure, the consolidation of governance and integrated reporting, and the recent expansion toward sustainability, strategic human capital, and digital analytics. Early studies were primarily concerned with whether human capital and other intellectual resources could be measured, reported, and linked to corporate value. During this phase, human capital was treated as an economically important but inadequately recognised organisational resource. Research therefore focused on voluntary disclosure, intellectual capital efficiency, intangible assets, financial performance, and market valuation (Lajili & Zéghal,

2006; Bharathi Kamath, 2008; Cormier et al., 2009; Mehralian et al., 2012). These studies established the foundational argument that conventional financial reporting does not fully capture the knowledge, competencies, experience, and relational capabilities through which organisations create value.

As the field developed, scholarly attention shifted from the existence of HCD toward its quality, governance determinants, communication channels, and economic consequences. Corporate governance, integrated reporting, disclosure quality, cost of capital, firm value, and corporate reputation became increasingly prominent. This transition reflected growing recognition that the value of human capital information depends not only on the amount disclosed but also on its relevance,

credibility, comparability, and integration with organisational strategy. Research showed that governance structures, managerial incentives, reporting systems, and stakeholder pressures influence whether firms provide meaningful information or rely on selective and impression-oriented communication (Kamardin et al., 2015; Beretta et al., 2019; Hassan et al., 2019; Salvi et al., 2020). The expansion of non-financial reporting further positioned HCD within a broader accountability framework encompassing intellectual capital, environmental performance, social responsibility, and long-term value creation (Stolowy & Paugam, 2018).

The most recent phase extends the literature toward sustainability, ESG performance, digital transformation, artificial intelligence, employee mobility, green innovation, and strategic human capital management. Human capital is increasingly understood not only as an input to financial performance but also as a capability supporting organisational resilience, innovation, responsible governance, and sustainable transformation. Studies examining employee turnover, human capital-driven acquisitions, corporate sustainability, digital disclosure, and machine-assisted textual analysis demonstrate that the field is moving beyond traditional annual-report content analysis toward more dynamic and data-intensive approaches (Chen et al., 2021; Li et al., 2022; Aspal et al., 2023; Mariappanadar, 2025). Digital platforms and advanced analytics now allow researchers and organisations to identify human capital signals across integrated reports, websites, social media, job advertisements, acquisition announcements, and other corporate communications. However, the findings also suggest that greater disclosure or

more sophisticated analytical tools do not automatically produce stronger performance. Their value depends on the quality of the underlying human capital practices, the credibility of the reported information, and the organisation's ability to convert employee knowledge into productive and sustainable outcomes.

The keyword co-occurrence network reinforces this interpretation. Human capital, intellectual capital, and firm performance occupy central positions and connect several interdependent knowledge domains, including intangible-resource management, disclosure and corporate reporting, governance and financial outcomes, strategic transactions, and sustainability. Strong associations among intellectual capital, intangible assets, human capital efficiency, voluntary disclosure, and business performance reflect the strategic-resource foundations of the field. Connections among disclosure quality, corporate governance, integrated reporting, cost of capital, and firm value demonstrate growing concern with the reliability and market consequences of human capital information. Meanwhile, associations with corporate social responsibility, sustainable development, corporate sustainability, innovation, digitalisation, and the green economy show that HCD is increasingly embedded within wider ESG and sustainability debates.

These domains should not be interpreted as independent research streams. They represent different components of the same value-creation and communication process. Human capital practices generate knowledge, capabilities, and employee-related resources; governance and reporting systems determine how those resources are measured and communicated;

stakeholders interpret the information as signals of organisational quality and future potential; and operational, financial, reputational, or sustainability outcomes reflect how effectively human capital is managed and deployed. This interconnected structure also explains why disclosure alone may not improve firm performance. Disclosure can reduce information asymmetry and strengthen stakeholder confidence when it reflects substantive organisational capabilities, but it can also serve symbolic, legitimising, or impression-management purposes when it is disconnected from actual employment practices and strategic outcomes.

4.1. Theoretical Implications

This study advances research on HCD and firm performance in three principal ways. First, it conceptualises HCD as a strategic communication and governance mechanism rather than merely a component of non-financial reporting. The dominance of the Resource-Based View and Human Capital Theory indicates that employee knowledge, experience, competencies, and relationships are treated as valuable organisational resources capable of supporting competitive advantage and performance (Nadeem et al., 2018; Eyo et al., 2025). However, these perspectives primarily explain why human capital matters, rather than why firms disclose it. Agency Theory, Signaling Theory, and Stakeholder Theory complement the strategic-resource perspective by explaining how disclosure can reduce information asymmetry, communicate organisational quality, and respond to the information needs of investors, employees, regulators, and other stakeholders (Lin et al., 2012; Singhania & Panda, 2025).

Second, the findings position disclosure quality as a potential

connecting mechanism between human capital resources and organisational outcomes. Human capital may contribute to innovation, productivity, and long-term value, but external stakeholders cannot directly observe many of these capabilities. Disclosure translates internally embedded knowledge and employee-related resources into information that can be evaluated by capital-market participants and other stakeholders. The effectiveness of this translation depends on materiality, specificity, consistency, and credibility. Generic or selectively positive reporting may have limited informational value, whereas decision-useful disclosure can strengthen transparency, reduce uncertainty, and improve stakeholder evaluation. This interpretation helps reconcile inconsistent findings regarding the relationship between disclosure and performance because the consequences of disclosure are likely to depend on its quality and on whether it represents substantive organisational capabilities.

Third, the study clarifies the theoretically pluralistic nature of the field. Resource Dependence Theory explains how firms rely on employees, executives, and external expertise to obtain critical resources, while Organisational Learning Theory highlights the processes through which knowledge is developed, shared, and converted into organisational capability. Impression Management and Legitimacy theories provide a more critical perspective by suggesting that HCD may be used to manage stakeholder perceptions or demonstrate conformity with social expectations. These perspectives show that disclosure can simultaneously perform informational, strategic, governance, and symbolic functions. A more integrated theoretical approach is therefore required to distinguish between substantive human

capital reporting and disclosure primarily intended to enhance corporate image.

The findings also indicate the importance of contextual and organisational boundary conditions. The disclosure–performance relationship may vary according to industry knowledge intensity, ownership structure, firm size, governance quality, regulatory environment, reporting standards, and national institutional context. Human capital information may be particularly material in knowledge-intensive sectors, while governance and assurance mechanisms may determine whether such information is perceived as credible. Future theoretical models should therefore avoid assuming a universal direct relationship and instead examine mediating mechanisms, moderating conditions, and differences between accounting, market, operational, social, and sustainability outcomes.

4.2. Practical Implications

The findings offer important implications for corporate managers, boards, investors, regulators, and standard-setting bodies. Organisations should treat HCD as part of an integrated strategy for managing, measuring, and communicating employee-related value. Reporting should move beyond descriptive statements about employees and provide decision-useful information on workforce composition, competencies, training and development, turnover, productivity, employee engagement, diversity, occupational safety, leadership succession, and knowledge retention. These indicators should be linked to strategic objectives and organisational outcomes rather than reported as isolated human resource statistics.

Managers should also ensure that external disclosure is supported by substantive human capital practices. Claims concerning employee development, inclusion, innovation, or sustainability should be consistent with internal policies, resource allocation, performance measures, and workforce experiences. Where disclosure is disconnected from organisational practice, it may be perceived as symbolic reporting or impression management. Cross-functional coordination among human resource, finance, sustainability, strategy, risk, and investor-relations units is therefore necessary to produce consistent and credible human capital information.

Boards and governance committees should strengthen oversight of human capital reporting. This includes defining material indicators, reviewing data quality, assessing reporting risks, and ensuring consistency across annual reports, sustainability reports, integrated reports, websites, and other communication channels. External assurance or internal audit procedures may further improve confidence in employee-related metrics, particularly where such measures influence investment decisions or ESG assessments. Regulators and standard setters should encourage greater comparability while allowing sufficient flexibility to reflect differences across sectors and organisational contexts.

Investors and analysts should evaluate HCD alongside operational and financial evidence rather than relying on disclosure volume alone. Indicators such as turnover, workforce productivity, training investment, employee stability, leadership depth, and occupational risk may provide important evidence about an organisation's ability to sustain future performance. Qualitative narratives should therefore be assessed in

combination with measurable outcomes and changes over time.

CONCLUSIONS

This study provides a comprehensive synthesis of research on HCD and firm performance through systematic review, bibliometric performance analysis, science mapping, and thematic interpretation. The findings show that the field has developed as a multidisciplinary domain connecting intellectual capital accounting, strategic management, corporate governance, human resource management, sustainability, and corporate reporting. Four interconnected thematic domains broadly define its knowledge structure: intellectual capital valuation and voluntary disclosure; corporate governance, reporting quality, and firm performance; strategic human capital and corporate transactions; and sustainability, corporate social responsibility, and digital transformation. Together, these domains demonstrate that the performance implications of HCD arise from the interaction of substantive workforce capabilities, governance mechanisms, reporting practices, stakeholder interpretation, and organisational context.

The temporal analysis reveals a progression across three developmental phases. The foundational valuation and voluntary disclosure phase focused on intellectual capital, intangible assets, human capital efficiency, financial performance, and the limitations of conventional financial statements in representing employee-related resources. The governance, integrated reporting, and performance consolidation phase shifted attention toward disclosure quality, corporate governance, non-financial reporting, firm value, reputation, and the capital-

market consequences of intellectual capital information. More recently, the sustainability, strategic human capital, and digital analytics phase has expanded the field toward ESG performance, corporate sustainability, employee mobility, green innovation, digital transformation, artificial intelligence, and automated textual analysis. This progression indicates that the literature has moved from viewing HCD primarily as an accounting and valuation issue toward understanding it as a broader strategic, governance, sustainability, and information-management capability.

The study contributes theoretically by integrating several research traditions into a more coherent representation of the HCD and firm performance knowledge domain. The findings show that the field cannot be adequately explained through a single theoretical perspective. The Resource-Based View and Human Capital Theory explain why employee knowledge, skills, experience, and relationships constitute strategically valuable resources. Agency and Signaling theories explain how disclosure can reduce information asymmetry and communicate organisational quality to investors. Stakeholder and Resource Dependence theories broaden the analysis by considering the information needs of multiple constituencies and organisations' reliance on critical human resources. Organisational Learning Theory further explains how employee knowledge is developed and converted into organisational capabilities, while Impression Management and Legitimacy theories highlight the possibility that disclosure may be used symbolically to influence stakeholder perceptions. Integrating these perspectives clarifies that HCD can simultaneously perform strategic, informational, governance,

accountability, and reputational functions.

From a practical perspective, the findings suggest that organisations should embed HCD within corporate strategy, governance, risk management, sustainability reporting, and workforce planning rather than treating it as an isolated reporting exercise. Human capital information should extend beyond basic workforce statistics to include material indicators of employee competencies, development, productivity, turnover, engagement, diversity, occupational safety, leadership succession, and knowledge retention. These indicators should be consistently linked to organisational objectives, financial outcomes, innovation, risk exposure, and sustainability performance. Effective reporting also requires coordination among human resource, finance, sustainability, risk, internal audit, and investor-relations functions.

Boards and senior managers should ensure that HCDs are supported by reliable data, substantive employment practices, appropriate internal controls, and clear accountability. Independent assurance and transparent measurement definitions may improve credibility and comparability, particularly as investors and ESG-rating agencies increasingly use employee-related information in organisational assessments. Organisations adopting artificial intelligence, machine learning, and automated textual analysis should also address employee privacy, algorithmic bias, data accuracy, explainability, and ethical governance. Digital tools can improve the timeliness and depth of human capital analysis, but they cannot substitute for credible workforce practices and responsible managerial judgement.

Several limitations should be acknowledged. First, the analysis is based on publications included in the selected bibliographic dataset and may exclude relevant studies from other databases, regional journals, professional publications, books, and non-English sources. Second, bibliometric results depend on database indexing, author keyword selection, citation accumulation, data-cleaning decisions, and analytical thresholds, which may influence the identified networks and thematic clusters. Third, citation counts tend to favour older publications and should therefore be interpreted as indicators of scholarly visibility rather than direct measures of methodological quality or theoretical importance. Fourth, the study maps associations and developments within the literature but does not empirically test causal relationships among human capital practices, disclosure quality, stakeholder responses, and firm performance. Finally, rapidly developing areas such as artificial intelligence, mandatory sustainability reporting, workforce analytics, and digital disclosure may not yet be fully represented in the current knowledge structure.

Future research should investigate the mechanisms through which HCD influences financial, operational, market, reputational, social, and sustainability outcomes. Longitudinal, experimental, qualitative, and mixed-method studies are needed to distinguish substantive disclosure from symbolic reporting and to determine whether changes in disclosure precede improvements in performance or merely reflect existing organisational strength. Comparative research should examine differences across industries, ownership structures, regulatory systems, reporting regimes, and national institutional contexts.

Further attention should also be directed toward disclosure assurance, employee privacy, workforce inequality, algorithmic governance, greenwashing, and the credibility of AI-generated corporate reporting. Such research would strengthen the theoretical integration of the field and support the development of HCD practices that are strategically relevant, empirically grounded, ethically responsible, and useful to stakeholders.

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