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Human Resource Accounting in Knowledge Based Organizations in The Digital Era: A Systematic Literature Review

YUNITA KWARTARANI[1a], SURIPTO[1b], ENDANG RUHIYAT[1c]
[1a,b,c]Postgraduate Program, Universitas Pamulang, South Tangerang, Indonesia
Email**: **yunitaqonita21@gmail.com[1], dosen00756@unpam.ac.id[2], e-ruhiyat_00020@unpam.ac.id[3]

ABSTRACT

Human Resource Accounting (HRA) has gained increasing attention in the digital era, particularly within knowledge-based organizations where human capital plays a strategic role in value creation and sustainable competitiveness. Rapid digital transformation, driven by Industry 4.0, has shifted organizational dependence from physical assets toward knowledge, skills, and competencies of human resources. This condition raises the need for accounting systems capable of capturing and reporting the value of human resources more comprehensively. This study aims to examine the development, relevance, and strategic role of Human Resource Accounting in knowledge organizations within the digital era context. This research employs a qualitative approach using a Systematic Literature Review (SLR) method. Data were collected from national and international scientific journals published between 2021 and 2025, sourced from reputable databases such as Google Scholar and Scopus. Content analysis was applied to identify key themes, conceptual frameworks, and research trends related to HRA, digital human resource management, and knowledge-based organizations. The findings indicate that digital transformation strengthens the urgency of implementing HRA as a strategic management tool rather than merely a normative accounting concept. The integration of digital technologies, including information systems, data analytics, and artificial intelligence, enhances the relevance, accuracy, and usefulness of HRA information for managerial decision-making. Furthermore, HRA contributes to improved transparency, organizational value, and sustainable competitive advantage. However, challenges remain, particularly regarding measurement complexity and the absence of standardized reporting frameworks. Therefore, future research and regulatory efforts are required to develop adaptive and digital-oriented HRA standards.

Keywords: *Digital Era; Digital Transformation; Human Resource Accounting; Human Resource Management; Knowledge Organization*

* Corresponding author’s e-mail: *yunitaqonita21@gmail.com*

1. INTRODUCTION

The advancement of the digital era, driven by the Fourth Industrial Revolution (Industry 4.0), has fundamentally transformed how organizations operate, create value, and sustain competitive performance. This transformation is driven not only by technological innovations such as artificial intelligence, big data, cloud computing, and integrated digital systems, but also by social changes that accelerate the emergence of knowledge-based organizations. In the Indonesian context, Industry 4.0 represents a strategic foundation for achieving the vision of Indonesia Emas 2045, where innovation, knowledge, and high-quality human resources are regarded as the primary drivers of sustainable national development (Hidayat, 2022). Consequently, organizational success is increasingly determined by the ability to develop, manage, and leverage human capital rather than relying solely on physical or financial resources.

These developments have substantially changed the paradigm of Human Resource Management (HRM). Human resources are no longer viewed merely as operational inputs or production costs but as strategic assets capable of generating economic, intellectual, and social value. Accordingly, HRM has evolved from an administrative function into a strategic partner responsible for competency development, talent management, and organizational sustainability. Jailani and Jailani & Samiyah (2025) and Noviana (2025) emphasize that strategic HRM contributes directly to organizational performance by aligning workforce capabilities with business objectives. Similarly, Purba et al. (2025) argue that adaptive human resource development focusing on digital competencies has become a critical determinant of organizational competitiveness in an increasingly dynamic global environment.

Digital transformation has also reshaped organizational learning and knowledge management practices. Organizations are increasingly expected to become learning organizations capable of creating, sharing, and utilizing knowledge systematically. (Havidotinnisa & Rofaida, 2025) demonstrate that digital transformation strengthens organizational learning by improving knowledge-sharing processes and supporting continuous capability development, particularly in public sector organizations. Likewise, the adoption of Outcome-Based Education (OBE) reflects efforts to ensure that graduates possess competencies aligned with Industry 4.0 requirements and rapidly changing labour market demands (Muzakir & Susanto, 2023). These developments indicate that knowledge and human competencies have become strategic organizational resources that require more effective management and evaluation.

The growing strategic importance of human capital has increased the need for accounting systems capable of measuring and reporting its value. Human Resource Accounting (HRA) has emerged as an approach designed to identify, measure, and communicate the economic value of human resources within organizations. Ratu et al. (2022) argue that HRA provides relevant information to support managerial decisions regarding investments in employee development. Empirical evidence further suggests that HRA implementation contributes to organizational efficiency, financial performance, and improved transparency through more comprehensive human capital disclosure (Supriatna et al., 2026).

* Corresponding author’s e-mail: *yunitaqonita21@gmail.com*

Despite these developments, an important phenomenon gap remains. In many organizations, expenditures on recruitment, training, and employee development continue to be recognized primarily as operational expenses rather than long-term strategic investments. Consequently, conventional accounting systems frequently fail to reflect the actual value of human capital, creating a mismatch between the strategic contribution of employees and the information available for managerial decision-making. This limitation becomes increasingly significant as organizations rely more heavily on digital competencies, innovation, and organizational knowledge to achieve sustainable competitive advantage.

The implementation of HRA also faces conceptual and practical challenges, particularly regarding the measurement of dynamic human capital and the absence of standardized accounting frameworks. Organizational characteristics such as profitability, firm size, and listing age influence the extent of HRA disclosure, resulting in considerable variation across organizations (Prawesty & Jayanti, 2025). Moreover, previous studies have largely examined HRA from fragmented perspectives. Existing research predominantly investigates its relationship with financial performance (Hakim & Agustina, 2026; Wijaya & Wardah, 2025), disclosure practices (Yani et al., 2024), or organizational characteristics affecting implementation (Prawesty & Jayanti, 2025). Meanwhile, studies on digital human resource management and knowledge-based organizations mainly emphasize competency development and digital transformation without comprehensively integrating these perspectives into the Human Resource Accounting framework (Noviyanti, 2026). As a result, there remains limited understanding of how HRA has evolved as a strategic management approach capable of supporting organizational performance in digitally transformed, knowledge-based environments (Sari et al., 2023).

This research gap highlights the urgency of conducting a systematic literature review. Beyond summarizing existing findings, a systematic review enables the identification of emerging research trends, conceptual developments, methodological limitations, and future research opportunities concerning HRA. Such a synthesis is particularly important because organizations increasingly require integrated human capital measurement systems that combine accounting principles with strategic human resource management and digital technologies.

The novelty of this study lies in its integrated synthesis of Human Resource Accounting from the perspectives of digital transformation, strategic human resource management, and knowledge-based organizations. Unlike previous reviews that primarily focus on individual dimensions of HRA, this study develops a comprehensive conceptual framework explaining the relationships among digitalization, human capital valuation, and organizational competitiveness. In addition, the review identifies unresolved conceptual and methodological issues while proposing future directions for developing adaptive Human Resource Accounting models suitable for the digital era.

Therefore, this systematic literature review seeks to provide a comprehensive understanding of the evolution of Human Resource Accounting concepts and practices while identifying opportunities for future development. The findings are expected to enrich the theoretical discourse on HRA by integrating

* Corresponding author’s e-mail: *yunitaqonita21@gmail.com*

accounting, strategic HRM, and knowledge-based organizational perspectives, while also offering practical guidance for organizations and policymakers in developing adaptive human capital measurement and reporting systems. Through these contributions, this study aims to strengthen the role of Human Resource Accounting as a strategic management instrument that supports sustainable organizational value creation in the digital era.

2. THEORETICAL FRAMEWORK AND HYPOTHESIS

Human Resource Accounting

Human Resource Accounting (HRA) is an accounting approach that seeks to identify, measure, and report the value of human resources as an integral component of organizational assets. Within the conventional accounting paradigm, expenditures on recruitment, training, and employee development are generally recognized as operational expenses, causing the long-term contribution of human capital to organizational value creation to remain largely invisible in financial reporting. In contrast, knowledge-based organizations increasingly recognize human resources as strategic assets that generate innovation, productivity, and sustainable competitive advantage. Accordingly, Ratu et al. (2022) argue that HRA provides relevant managerial information for evaluating investments in human resource development and supporting strategic decision-making.

The literature proposes several approaches to HRA implementation, including the cost-based, value-based, and information valuation approaches. The cost-based approach focuses on historical expenditures associated with acquiring and developing employees, whereas the value-based approach emphasizes the economic value generated through employee competencies and organizational contributions. Sari et al. (2023) contend that the value-based approach better reflects organizational performance because it encourages managers to regard human resources as strategic investments rather than operational costs. Meanwhile, the information valuation approach expands HRA by incorporating non-financial information, such as competencies, experience, and development potential, which has become increasingly relevant in digitally enabled organizations.

Despite broad agreement regarding the strategic importance of HRA, previous studies demonstrate notable differences in emphasis. Ratu et al. (2022) primarily highlight its managerial usefulness, whereas Sari et al. (2023) focus on its contribution to financial performance. Conversely, Wijaya & Wardah (2025) show that practical implementation remains constrained by measurement complexity and reporting limitations, particularly among small and medium-sized enterprises. These contrasting findings suggest that the principal issue is no longer whether human resources should be recognized as strategic assets, but how their economic value can be measured consistently across diverse organizational contexts.

Furthermore, HRA implementation remains heterogeneous due to the absence of universally accepted accounting standards. (Prawesty & Jayanti, 2025) demonstrate that HRA disclosure is influenced by firm characteristics such as profitability, firm size, and listing age, indicating that organizational readiness

* Corresponding author’s e-mail: *yunitaqonita21@gmail.com*

significantly affects implementation. From a theoretical standpoint, these issues are explained by Human Capital Theory, which posits that investments in employee knowledge, skills, and competencies create long-term economic benefits. Therefore, HRA serves as an accounting mechanism that translates investments in human capital into measurable organizational value, reinforcing its strategic relevance in modern organizations.

Knowledge-Based Organizations in the Digital Era

The Fourth Industrial Revolution has accelerated the emergence of knowledge-based organizations, where competitive advantage depends less on tangible resources and increasingly on knowledge, innovation, and continuous learning. (Hidayat (2022) explains that Industry 4.0 promotes the development of a knowledge-based society in which intellectual capital becomes the primary driver of organizational and national development.

Continuous learning is therefore indispensable, as rapid technological change requires employees to continuously update their competencies. Havidotinnisa & Rofaida (2025) demonstrate that digital transformation strengthens organizational learning by enhancing knowledge-sharing processes, while Muzakir & Susanto (2023) emphasize Outcome-Based Education (OBE) as an important strategy for producing graduates with competencies aligned to Industry 4.0 demands. Technological advances, including artificial intelligence, big data, and digital analytics, further support evidence-based human resource management through more accurate and real-time decision-making.

Although these studies consistently acknowledge the importance of digital transformation, they differ in explaining the mechanisms through which organizational value is created. Hidayat (2022) focuses on macro-level societal transformation, Havidotinnisa & Rofaida (2025) emphasize organizational learning, and Muzakir & Susanto (2023) concentrate on competency development. Collectively, these studies demonstrate that knowledge creation is multidimensional; however, they provide limited discussion regarding how knowledge and human competencies should be systematically valued and reported within organizational accounting systems.

This perspective aligns with the Knowledge-Based View (KBV), which considers knowledge the most valuable organizational resource. Consequently, HRA should evolve beyond recording financial investments to capturing organizational learning, innovation capability, and knowledge creation as strategic assets.

Integration of Human Resource Accounting and Digital Human Resource Management

Digital transformation has fundamentally changed the role of human resource management from an administrative function into a strategic organizational partner. Jailani & Samiyah (2025) and Noviana (2025) argue that modern HRM contributes directly to talent management, competency development, and organizational competitiveness. In this environment, HRA provides an

* Corresponding author’s e-mail: *yunitaqonita21@gmail.com*

accounting framework that enables organizations to evaluate investments in human capital more systematically.

Purba et al. (2025) emphasize that competency-oriented HR development strategies are essential for maintaining competitiveness in a rapidly changing environment. Likewise, Yani et al. 2024) demonstrate that HRA disclosure improves organizational transparency and information quality, thereby strengthening stakeholder confidence. These findings suggest that integrating HRA with digital HRM can enhance organizational performance through evidence-based decision-making.

Nevertheless, previous research has largely examined HRA and digital HRM independently. Studies on digital HRM primarily focus on competency development, digital capability, and organizational adaptability (Jailani & Samiyah, 2025; Novianti & Mulyaningsih, 2025; Purba et al., 2025), whereas HRA research predominantly investigates valuation, disclosure, and financial performance (Sari et al., 2023). Consequently, there remains limited understanding of how digital HRM practices strengthen HRA implementation or how HRA information supports strategic digital HRM decisions. This conceptual fragmentation indicates an important gap within the literature.

The Resource-Based View (RBV) provides an appropriate theoretical explanation for integrating these concepts. RBV argues that organizations achieve sustainable competitive advantage through valuable, rare, inimitable, and non-substitutable resources. Human resources equipped with digital competencies satisfy these characteristics, while HRA provides a systematic mechanism for measuring and communicating their strategic value. Therefore, integrating HRA with digital HRM strengthens both managerial decision-making and long-term organizational competitiveness.

Conceptual Framework of the Study

The conceptual framework of this study explains the relationship between digital transformation, strategic human resource management, and Human Resource Accounting in enhancing organizational value. Digital transformation encourages HRM to evolve from an administrative function into a strategic function emphasizing competency development, digital capability, and continuous learning. This transformation increases the need for HRA as a comprehensive system for measuring and reporting the value of human resources.

The framework is theoretically supported by three complementary perspectives. Human Capital Theory explains that investments in employees generate long-term organizational value. The Resource-Based View emphasizes that human resources constitute strategic assets capable of creating sustainable competitive advantage, while the Knowledge-Based View highlights knowledge and organizational learning as the principal drivers of competitiveness in the digital era. The integration of these theories provides a comprehensive conceptual foundation for understanding the strategic role of HRA within knowledge-based organizations undergoing digital transformation. As this study adopts a systematic literature review approach, these relationships are presented as conceptual propositions rather than empirically tested hypotheses.

* Corresponding author’s e-mail: *yunitaqonita21@gmail.com*

3. RESEARCH METHOD

Research Design

This study employed a qualitative research approach using the Systematic Literature Review (SLR) method to systematically identify, evaluate, and synthesize empirical and theoretical studies related to Human Resource Accounting (HRA), Digital Human Resource Management (DHRM), and knowledge-based organizations. The review followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines to ensure transparency, rigor, and reproducibility throughout the review process. The SLR approach was selected because it enables a comprehensive synthesis of existing knowledge while minimizing researcher bias through a structured literature identification, screening, eligibility assessment, and inclusion process.

Search Strategy and Data Collection

The literature search was conducted between January and May 2025 using three major academic databases: Scopus, Google Scholar, and nationally indexed journals. These databases were selected because they provide extensive coverage of international and Indonesian publications relevant to accounting, human resource management, and digital transformation.

The search strategy employed combinations of predefined keywords using Boolean operators, including "Human Resource Accounting" AND "Digital Transformation", "Human Resource Accounting" AND "Knowledge-Based Organization", "Digital Human Resource Management", and "Human Capital Accounting". Only peer-reviewed journal articles published between 2021 and 2025 were considered to ensure the inclusion of recent developments in the field.

Article Selection Criteria

Article selection followed predefined inclusion and exclusion criteria to ensure consistency and relevance throughout the review process. The criteria were established based on publication year, publication type, language, research focus, accessibility, and indexing status.

Table 1. Inclusion and Exclusion Criteria

Criteria	Inclusion	Exclusion
Publication year	2021–2025	Before 2021
Publication type	Peer-reviewed journal articles	Books, conference papers, theses, dissertations
Language	English and Indonesian	Other languages
Research focus	HRA, Digital HRM, Knowledge-Based Organization	Unrelated topics
Accessibility	Full-text available	Abstract only or inaccessible articles
Indexing	Scopus, Google Scholar, National Indexed Journals	Non-academic sources

* Corresponding author's e-mail: *yunitaqonita21@gmail.com*

Following the application of the predefined inclusion and exclusion criteria, the article selection process consisted of identification, screening, eligibility assessment, and final inclusion. The initial search identified 85 articles from the selected databases. After removing 15 duplicate records, 70 articles remained for title and abstract screening. At this stage, 32 articles were excluded because they did not meet the predefined research focus or other inclusion criteria. Subsequently, 38 full-text articles were assessed for eligibility. A further 14 articles were excluded because they did not satisfy the inclusion criteria or the required quality standards. Finally, 24 articles met all eligibility requirements and were included in the systematic literature review.

Table 2. Article Selection Process

Selection Stage	Number of Articles
Articles identified through database searching	85
Duplicate articles removed	15
Articles screened by title and abstract	70
Articles excluded during title and abstract screening	32
Full-text articles assessed for eligibility	38
Full-text articles excluded	14
Articles included in the final review	**24**

The final 24 articles were subsequently analyzed using qualitative content analysis. The selected studies were examined to identify key concepts, theoretical perspectives, research methods, principal findings, and emerging themes related to Human Resource Accounting, Digital Human Resource Management, and knowledge-based organizations. The article selection process followed the PRISMA framework, comprising identification, screening, eligibility, and inclusion stages.

Quality Assessment and PRISMA Procedure

To enhance methodological rigor, each selected article was evaluated using four quality assessment criteria: (1) relevance to the research objectives, (2) methodological clarity, (3) credibility of publication source, and (4) completeness of findings related to Human Resource Accounting and digital transformation. Articles that failed to satisfy these quality standards were excluded from the final synthesis.

The article selection process followed the PRISMA framework, consisting of four stages: Identification, where articles were retrieved from the selected databases; Screening, involving duplicate removal and title-abstract review; Eligibility, through full-text evaluation based on inclusion and exclusion criteria; and Inclusion, resulting in the final set of studies analyzed in this review. The complete PRISMA flow diagram is presented in Figure 1.

Data Analysis

Data were analyzed using qualitative content analysis. Initially, all selected articles were read thoroughly to identify key concepts, theoretical perspectives, research methods, and principal findings. The extracted information was

* Corresponding author's e-mail: *yunitaqonita21@gmail.com*

subsequently coded and classified into thematic categories, including (1) Human Resource Accounting concepts and measurement approaches, (2) Digital Human Resource Management transformation, (3) Knowledge-based organizations, (4) HRA implementation challenges, and (5) Future research opportunities.

The final stage involved cross-study synthesis, whereby similarities, differences, and inconsistencies among previous studies were systematically compared. Rather than merely summarizing existing findings, the synthesis identified recurring research trends, conceptual gaps, methodological limitations, and emerging directions for future studies. This analytical process enabled the development of an integrated conceptual understanding of Human Resource Accounting within the context of digital transformation and knowledge-based organizations.

4. DATA ANALYSIS AND DISCUSSION

Data Analysis

The analysis of the 24 reviewed articles indicates that research on Human Resource Accounting (HRA) has undergone significant development in parallel with the acceleration of digital transformation and the shift in organizational characteristics toward knowledge-based organizations. Recent literature no longer conceptualizes HRA merely as a normative accounting construct; instead, it is increasingly positioned as an integral component of strategic management systems that intersect with human resource management and digital technologies. This perspective is consistent with the findings of Bhooshetty (2023), whose bibliometric analysis highlights a renewed scholarly interest in HRA, particularly emphasizing human capital valuation, non-financial information, and strategic relevance in managerial decision-making.

A dominant trend identified in the literature is the growing emphasis on the digitalization of human resource management and the reinforcement of human capital value as a core organizational asset. Several studies underscore that digital competencies of human resources have become a critical determinant of organizational success in the digital era (Ayyasy & Maelani, 2024; Pahlan et al., 2025; Prezita et al., 2024). Within this context, the role of human resource management extends beyond traditional administrative functions to encompass the development of competencies, creativity, and adaptive capabilities that enable human resources to respond effectively to technological change (Alwy, 2022; Fadillah et al., 2025; Joesyiana et al., 2024). Organizations that systematically manage and develop digital competencies are therefore more likely to achieve sustainable competitive advantage.

Beyond digital competencies, the literature also highlights the role of technology in enhancing the accuracy and relevance of human resource valuation. Digital technologies including accounting information systems, big data analytics, and artificial intelligence enable organizations to collect and analyse human resource data in a more comprehensive and real-time manner. Al-Behadili et al. (2025) propose an HRA model grounded in the information valuation approach,

* Corresponding author’s e-mail: *yunitaqonita21@gmail.com*

emphasizing the strategic importance of information as a basis for assessing human resource value in public sector organizations. These findings are reinforced by Anshori (2025) as well as Zhang & Cheng (2024), who demonstrate that the integration of digital technologies and artificial intelligence into human resource management creates new opportunities for measuring performance, potential, and individual contributions more objectively and dynamically.

The analysis further reveals that knowledge-based organizations constitute the dominant contextual setting for the advancement of HRA in the digital era. Anshari et al. (2022) and Menz et al. (2021) argue that the Fourth Industrial Revolution compels organizations to rely increasingly on knowledge, innovation, and continuous learning as primary sources of value creation. Within this context, HRA serves as a mechanism for capturing the intangible value of human resources that has traditionally been difficult to quantify using conventional accounting methods. Organizational and human resource management transformations in the digital era are also characterized by changes in organizational structures, cultures, and strategic orientations (Cherep et al., 2022; Herawati et al., 2024; Wahyudi et al., 2023).

Thematically, the findings of the literature analysis can be classified into three primary areas: (1) HRA concepts and models in the digital era, (2) the transformation of human resource management roles and human resource competencies, and (3) challenges and opportunities associated with HRA implementation in knowledge-based organizations. Samudra et al. (2025), through a systematic literature review, observe that most digital HRM studies position human resources as strategic assets, yet they remain insufficiently integrated with accounting practices. Conversely, (Sianipar et al., 2025) emphasize that management accounting particularly HRA plays a crucial role in supporting managerial decision-making and enhancing corporate performance toward sound governance. To further clarify the analytical results, a literature synthesis table is presented to summarize the main focus and contributions of the 24 reviewed articles.

Table 3. Synthesis of Literature Review on Human Resource Accounting and Digital Human Resource Management

No.	Author(s) (Year)	Research Focus	Methodology	Key Findings
1	Al-Behadili et al. (2025)	Human Resource Accounting model	Conceptual	Information valuation–based HRA improves the quality of human resource assessment in the public sector
2	Alwy (2022)	HRM in the digital era	Qualitative	The role of HR managers has shifted toward becoming agents of digital change
3	Anshari et al. (2022)	Knowledge management and digital humanities	Conceptual	Industry 4.0 accelerates the emergence of knowledge-based organizations
4	Anshori (2025)	Artificial intelligence in HR development	Literature review	AI presents strategic opportunities as well as challenges in HRM

* Corresponding author’s e-mail: *yunitaqonita21@gmail.com*

No.	Author(s) (Year)	Research Focus	Methodology	Key Findings
5	Ayyasy & Maelani (2024)	Digital human resource competencies	Literature review	Competency gaps represent a major challenge in the digital era
6	Bag & Wood (2022)	Human resource development	Editorial	A new HRD research agenda is required in response to digital transformation
7	Bhooshetty (2023)	Trends in HRA research	Bibliometric analysis	HRA research is shifting toward strategic human capital valuation
8	Cherep et al. (2022)	Organizational transformation	Qualitative	Digitalization drives changes in organizational structure and culture
9	Fadillah et al. (2025)	Role of digital HRM	Descriptive	Digital HRM plays a crucial role in enhancing organizational competitiveness
10	Gore et al. (2025)	Human capital accounting	Quantitative	Human resource competencies enhance competitiveness in the accounting profession
11	Herawati et al. (2024)	Concepts and challenges of HRM	Literature review	Digital HRM implementation still faces adaptation barriers
12	Iswandi & Kuswinarno (2025)	Digital human resource development	Qualitative	HR transformation requires continuous learning
13	Joesyiana et al. (2024)	Creativity-based HRM	Descriptive	Individual creativity is a key driver of HRM effectiveness in the digital era
14	Menz et al. (2021)	Digital corporate strategy	Conceptual	Human resources and knowledge are strategic organizational assets
15	Nazemi et al. (2021)	Digital HR performance	Conceptual model	HR performance management models must be adapted to the digital era
16	Noviana & Samiyah (2025)	HRM in modern organizations	Descriptive	HRM plays a strategic role in managing modern human resources
17	Pahlan et al. (2025)	Digital competencies of HR	Quantitative	Digital competencies significantly influence HR managers' performance
18	Prezita et al. (2024)	Digital HR capabilities	Literature review	Human resources must remain adaptive to technological change
19	Rachmawati et al. (2023)	HR training in SMEs	Community-based program	Digital training enhances SME human resource capacity
20	Samudra et al. (2025)	Digital HRM SLR	Systematic literature review	Research attention to digital HRM has increased significantly
21	Sianipar et al. (2025)	Digital management accounting	Descriptive	Management accounting supports strategic decision-making

* Corresponding author's e-mail: *yunitaqonita21@gmail.com*

No.	Author(s) (Year)	Research Focus	Methodology	Key Findings
22	Sudiantini et al. (2023)	Technology in HRM	Descriptive	Technology improves the efficiency of human resource management
23	Wahyudi et al. (2023)	Impact of digital transformation	Qualitative	Digitalization reshapes HRM roles and functions
24	Zhang & Chen (2024)	Digital HR transformation	Empirical	Digital transformation enhances HRM effectiveness

Discussion

Based on the literature analysis, Human Resource Accounting (HRA) has evolved beyond its traditional role as an accounting mechanism toward becoming a strategic management instrument within knowledge-based organizations. Information generated through HRA not only supports financial reporting but also facilitates strategic decision-making related to talent development, workforce planning, and organizational sustainability. This finding confirms the growing recognition that organizational value increasingly depends on intangible resources rather than physical assets, particularly in digitally transformed environments. In line with Sianipar et al. (2025), management accounting practices that incorporate human capital information contribute to higher-quality managerial decisions and improved organizational performance.

More importantly, the reviewed studies collectively indicate a paradigm shift in the conceptualization of HRA. Earlier perspectives primarily regarded HRA as a financial measurement tool, whereas recent studies increasingly position it as an integrated strategic management system linked to digital transformation, human capital development, and organizational competitiveness. This transition reflects the broader movement from conventional accounting toward strategic accounting, where financial and non-financial information are jointly utilized to support organizational value creation.

Nevertheless, the literature consistently identifies several unresolved challenges that hinder the broader adoption of HRA. The most significant issue concerns the measurement of human capital, which remains inherently dynamic, context-dependent, and multidimensional. Unlike physical assets, employee competencies, creativity, innovation, and organizational knowledge cannot be fully represented through standardized monetary indicators. Furthermore, the absence of internationally accepted HRA standards has resulted in inconsistent disclosure practices across organizations and industries (Bhooshetty, 2023; Samudra et al., 2025). This inconsistency suggests that the limitations of HRA are not solely methodological but also conceptual, as existing accounting frameworks have yet to fully accommodate the strategic characteristics of human capital in the digital economy.

The findings further reveal an important research gap. While numerous studies investigate digital human resource management, competency development, and digital transformation, relatively few integrate these developments with Human Resource Accounting. Likewise, HRA research continues to focus predominantly on valuation techniques and disclosure practices, with limited attention devoted to

* Corresponding author’s e-mail: *yunitaqonita21@gmail.com*

explaining how digital technologies can strengthen human capital measurement and strategic decision-making. This fragmentation indicates that HRA and digital HRM have largely evolved as separate research streams despite addressing the same strategic organizational resource.

The digital era simultaneously creates substantial opportunities for advancing HRA implementation. Artificial intelligence, accounting information systems, big data analytics, and digital platforms enable organizations to collect, process, and interpret human resource information more accurately and efficiently. Anshori (2025) and Zhang & Chen (2024) demonstrate that AI-based HRM enhances employee performance evaluation and talent identification. However, technological advancement alone does not guarantee effective HRA implementation. Organizations must also establish appropriate governance structures, develop digital competencies, and create organizational cultures that support evidence-based decision-making. Therefore, digital transformation should be viewed as an organizational capability rather than merely technological adoption.

The findings also reinforce the strategic role of Human Resource Management in facilitating HRA implementation. Fadillah et al. (2025), Noviana & Samiyah (2025) and Iswandi & Kuswinarno (2025) consistently emphasize that HRM has evolved into a strategic organizational partner responsible for competency development, innovation, and organizational adaptability. This review extends these findings by suggesting that HRM should additionally function as the organizational interface connecting accounting information, digital technologies, and human capital strategy. Such integration enables HRA to become an active managerial instrument rather than a passive reporting mechanism.

From a theoretical perspective, the findings strongly support the complementary roles of Human Capital Theory, the Resource-Based View (RBV), and the Knowledge-Based View (KBV). Human Capital Theory explains why investments in employee competencies generate long-term organizational value. RBV further suggests that digitally competent human resources represent valuable, rare, inimitable, and non-substitutable assets capable of producing sustainable competitive advantage. Meanwhile, KBV emphasizes that organizational knowledge and continuous learning constitute the principal drivers of innovation in the digital era. Collectively, these theories explain why HRA should evolve from measuring employee-related costs toward capturing strategic human capital capable of generating sustainable organizational value.

This review also provides an original conceptual contribution by integrating three research domains that have generally been examined independently: Human Resource Accounting, Digital Human Resource Management, and knowledge-based organizations. Rather than considering HRA solely as an accounting innovation, this study conceptualizes it as a strategic mechanism that translates investments in digital human capital into measurable organizational value. This integrated perspective offers a more comprehensive explanation of HRA's evolving role in organizations undergoing digital transformation.

Overall, the discussion indicates that integrating HRA, digital HRM, and knowledge-based organizational frameworks represents a necessary direction for

* Corresponding author's e-mail: *yunitaqonita21@gmail.com*

organizational development in the digital era. Existing conceptual and technical challenges require methodological innovation, adaptive reporting standards, and broader utilization of digital technologies. Future studies should move beyond conceptual discussions by empirically validating integrated HRA frameworks across different organizational contexts and developing hybrid measurement models that combine financial and non-financial indicators. Such efforts will contribute to establishing more standardized and practically applicable HRA frameworks capable of supporting sustainable and human-centered organizational value creation.

5. CONCLUSION & SUGGESTION

Conclusion

This systematic literature review demonstrates that Human Resource Accounting (HRA) has evolved from a conventional accounting approach into a strategic management instrument that supports organizational value creation in the digital era. The findings indicate that digital transformation, together with the emergence of knowledge-based organizations, has strengthened the strategic role of human capital, requiring organizations to adopt more comprehensive approaches to measuring and reporting human resource value. The integration of digital technologies, including accounting information systems, data analytics, and artificial intelligence, enhances the ability of HRA to provide timely, evidence-based information for managerial decision-making and long-term organizational sustainability.

The primary theoretical contribution of this study lies in integrating Human Capital Theory, the Resource-Based View, and the Knowledge-Based View into a unified framework that explains the evolving role of HRA within digitally transformed organizations. Unlike previous studies that predominantly examine HRA, digital HRM, or knowledge-based organizations independently, this review synthesizes these research streams to provide a more comprehensive understanding of how HRA supports strategic human capital management and sustainable competitive advantage.

Nevertheless, this study is limited by its reliance on secondary literature published between 2021 and 2025 and by the absence of empirical validation of the proposed conceptual relationships. Consequently, the findings should be interpreted as a conceptual synthesis rather than empirical evidence.

Suggestions for Future Research and Practice

Future studies are encouraged to empirically examine the proposed conceptual framework using quantitative, qualitative, or mixed-methods approaches across different organizational and industrial contexts. Comparative cross-country studies and the development of hybrid HRA measurement models integrating financial and non-financial indicators are also recommended to enhance the generalizability and practical applicability of HRA.

* Corresponding author’s e-mail: *yunitaqonita21@gmail.com*

From a practical perspective, organizations should integrate HRA into digital human resource information systems to support strategic workforce planning, performance evaluation, and evidence-based decision-making. In addition, policymakers, accounting standard setters, and academic institutions should collaborate to develop adaptive HRA guidelines that reflect the characteristics of digital and knowledge-based organizations, thereby promoting more consistent and sustainable implementation of Human Resource Accounting.

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* Corresponding author's e-mail: *yunitaqonita21@gmail.com*

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* Corresponding author's e-mail: *yunitaqonita21@gmail.com*

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* Corresponding author's e-mail: *yunitaqonita21@gmail.com*

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* Corresponding author’s e-mail: *yunitaqonita21@gmail.com*