

## Human Resource Analytics Strategy to Optimize Digital Business Accounting Processes

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### ABSTRACT

The study seeks to generate novel insights into how HR analytics can serve as a strategic lever, moving beyond conventional HR metrics to drive improvements in process performance, employee competencies, and organizational agility. The study seeks to generate novel insights into how HR analytics can serve as a strategic lever, moving beyond conventional HR metrics to drive improvements in process performance, employee competencies, and organizational agility. This study adopts a qualitative exploratory design to understand how organizations leverage Human Resource Analytics (HRA) to optimize digital business accounting processes. To address the novelty of exploring how HRA supports digital accounting (an under-researched link), this study will focus on cross-functional perspectives, collecting data from both HR and accounting leaders rather than HR alone. The findings reveal that when HRA is applied cross-functionally, it becomes a powerful enabler of digital transformation by identifying skill gaps, informing targeted training, and improving accounting process outcomes such as accuracy and efficiency. HR and Finance leaders should collaborate to embed HR analytics into transformation projects, ensuring that skill gaps are identified and addressed proactively.

**Keywords:** Human Resource Analytics; Strategy; Digital Business Accounting

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**SDGs:** Decent Work and Economic Growth (8); Industry, Innovation, and Infrastructure (9); Quality Education (4); Responsible Consumption and Production (12); Peace, Justice, and Strong Institutions (16)

### INTRODUCTION

The rapid digital transformation of business practices has reshaped not only how organizations deliver products and services but also how they manage their internal processes, including accounting and human resources functions. Digital business accounting, characterized by the integration of cloud-based systems, real-time reporting, and data-driven decision-making, has emerged as a cornerstone of modern enterprise competitiveness. Yet, despite substantial technological investments, many organizations struggle to achieve the full potential of digital accounting systems due to a lack of alignment between technological capability and human capital readiness (Wati et al., 2024).

Human Resource Analytics (HRA), which involves the systematic collection and analysis of employee-related data to inform strategic decisions, is increasingly recognized as a critical enabler of successful digital transformation. Through the application of predictive and prescriptive analytics, organizations can gain deep insights into workforce capabilities, training needs, performance gaps (Elfita et al., 2022), and engagement patterns. When strategically leveraged, HRA can support not only traditional HR objectives but also cross-functional priorities, including the optimization of accounting processes.

Prior studies on digital accounting have largely concentrated on technical implementation challenges, regulatory compliance, and system integration. Meanwhile, the role of human resources has often been viewed

through a limited lens, focusing primarily on change management or basic training interventions. There remains a significant gap in understanding how an evidence-based HR analytics strategy can actively contribute to improving the accuracy, efficiency, and strategic value of digital business accounting processes. This gap is especially evident in fast-evolving industries where accounting teams must rapidly adapt to new digital tools while maintaining high standards of transparency and control.

This study addresses this gap by exploring the ways in which organizations design and deploy HR analytics strategies to optimize their digital accounting processes. Using a qualitative approach, this research aims to capture the nuanced experiences (Renaldo et al., 2024), perceptions, and practices of HR and accounting professionals engaged in digital transformation initiatives. The study seeks to generate novel insights into how HR analytics can serve as a strategic lever, moving beyond conventional HR metrics to drive improvements in process performance, employee competencies, and organizational agility.

Ultimately, this research contributes to the emerging discourse on the convergence of HR analytics and digital accounting, offering practical implications for leaders who seek to harness data-driven HR strategies to achieve operational excellence in the digital business environment (Wahyudi et al., 2023).

## LITERATURE REVIEW

### Resource-Based View (RBV) Theory

The Resource-Based View (RBV), proposed by Barney (1991), posits that an organization's sustainable competitive advantage arises from its ability to acquire and utilize valuable, rare, inimitable, and non-substitutable (VRIN) resources. Human Resource Analytics is treated as a strategic capability, a data-driven resource that enables better decision-making. Employee competencies in digital systems (e.g., digital accounting platforms) represent a valuable intangible asset. The integration of HR analytics and accounting process optimization is a unique organizational capability that can be difficult to replicate by competitors. Organizations that effectively deploy Human Resource Analytics to develop digital competencies and optimize accounting processes can achieve superior performance through the strategic use of internal resources.

### Human Resource Analytics (HRA)

Human Resource Analytics has emerged as a strategic tool that moves HR from administrative support toward evidence-based decision-making (Sudarno et al., 2023). HRA involves the systematic collection, integration, and analysis of workforce data to inform and improve HR practices (Bassi, Carpenter, & McMurrer, 2012).

Contemporary studies emphasize how HRA contributes to:

- Talent acquisition and retention (M. Panjaitan et al., 2023)
- Workforce planning (Pernando et al., 2022)
- Employee engagement (Levenson, 2018)
- Learning and development (Harris, Craig, & Egan, 2019)

However, the literature primarily focuses on HR-centric outcomes, with limited exploration of HRA's role in supporting cross-functional goals such as accounting transformation.

### Digital Business Accounting Processes

Digital business accounting refers to the integration of technologies, cloud computing, artificial intelligence (Nyoto et al., 2023), and automation, into core accounting activities (Warren, Moffitt, & Byrnes, 2015). These innovations offer benefits including:

- Real-time financial reporting (Yoon, Hoogduin, & Zhang, 2015)
- Enhanced transparency and compliance (Rusilawati et al., 2023)
- Cost reduction and process streamlining (Putra et al., 2023)

However, research highlights persistent challenges:

- Skill gaps among accounting professionals (Suhardjo, Renaldo, et al., 2023)
- Resistance to change (Appelbaum et al., 2017)

- Misalignment between technology capabilities and workforce readiness (Gamage, 2016)

These findings underscore the need for human-centered strategies to fully realize the benefits of digital accounting.

### **Employee Competency Development in Digital Transformation**

The success of digital initiatives depends significantly on employees' digital literacy (Sari et al., 2022), adaptability, and continuous learning (Lamb, 2017). Competency development encompasses formal training, on-the-job learning, and knowledge sharing practices (Torraco & Lundgren, 2020).

Several studies demonstrate that:

- Targeted digital skills training improves adoption of new systems (Sirait et al., 2022)
- A supportive learning culture fosters innovation and reduces resistance (Purnama et al., 2025)
- Leadership commitment is crucial in driving behavioral change (Gazali et al., 2022)

Yet, there is limited empirical evidence on how HR analytics insights can shape competency development specifically for accounting staff.

### **Strategic Alignment between HR Analytics and Accounting Processes**

Emerging literature argues that HR analytics can transcend traditional HR boundaries to drive operational excellence in other functions (Marler & Boudreau, 2017). For example:

- Data-driven insights can identify skill gaps linked to accounting process errors.
- Predictive models can forecast training needs before deploying new accounting systems.
- Analytics dashboards can monitor competency development impact on process KPIs (Komardi et al., 2024).

However, this cross-functional potential is still under-researched. Most studies focus separately on HR analytics maturity or accounting digitization, without integrating them into a cohesive strategy.

### **Research Gap and Contribution**

While digital accounting transformation has been widely studied from a technology and process perspective, there is a clear gap in understanding:

- How HR analytics strategies are designed and operationalized to support digital accounting.
- How employee competency development mediates this relationship.
- What organizational practices enable or hinder this alignment.

This study contributes novel insights by exploring the intersection of HR analytics strategy and digital accounting processes, providing a deeper understanding of how evidence-based HR practices can drive performance beyond traditional HR domains (H. P. Panjaitan et al., 2023).

## **RESEARCH METHOD**

### **Research Design**

This study adopts a qualitative exploratory design to understand how organizations leverage Human Resource Analytics (HRA) to optimize digital business accounting processes (Sekaran & Bougie, 2016). A qualitative approach is appropriate because the topic involves complex, context-dependent experiences and perceptions that are not easily captured through quantitative surveys alone (Creswell & Creswell, 2023).

### **Research Setting and Participants**

The research will be conducted in medium and large enterprises implementing digital accounting systems (e.g., cloud accounting, ERP) and HRA tools (e.g., HR dashboards, predictive HR analytics). Participants: HR Managers / HR Analytics Specialists, Accounting Managers / Finance Transformation Leads, Digital Transformation Officers.

Sampling Method: Purposive sampling, selecting participants with direct experience in HR analytics and accounting digitization. Estimated 12–15 informants until data saturation is reached.

### **Data Collection Methods**

#### a. Semi-Structured Interviews (Rustan et al., 2025)

- Conducted in person or via secure video conferencing platforms.
- Interview guide designed around your conceptual framework:
  - \* HR Analytics strategy design and implementation
  - \* Competency development practices
  - \* Accounting process optimization experiences
  - \* Perceptions of impact and challenges

#### b. Document Analysis

Internal policies, training plans, HR analytics reports, and process performance metrics, subject to participant organizations' consent.

#### c. Observations (where permitted)

Observing HR-Accounting team interactions in workshops or project meetings (if feasible).

### **Data Analysis**

- Thematic Analysis (Braun & Clarke, 2006): Familiarization with data, Initial coding, Searching for themes, Reviewing themes, Defining and naming themes
- Use of qualitative analysis software (e.g., NVivo) to manage coding and traceability.
- Triangulation across interviews and documents to ensure credibility.

### **Ensuring Rigor**

- Credibility: Member checking by sharing synthesized findings with participants.
- Dependability: Detailed audit trail documenting decisions.
- Transferability: Thick descriptions of context.
- Confirmability: Reflexive journal to track researcher biases.

### **Methodology to Ensure Novelty**

To address the novelty of exploring how HRA supports digital accounting (an under-researched link), this study will:

- Focus on cross-functional perspectives, collecting data from both HR and accounting leaders rather than HR alone.
- Analyze how HRA insights are operationalized into specific accounting process improvements, not only generic HR outcomes.
- Examine the mediating role of competency development as a dynamic mechanism connecting HR analytics and accounting optimization.
- Develop an original integrative framework showing how HRA strategies can drive digital accounting performance.

This approach goes beyond descriptive accounts and seeks to build new conceptual understanding at the intersection of HR and digital accounting transformation.

### **Ethical Considerations**

This research will adhere to established ethical standards for qualitative inquiry:

- Informed Consent:

Participants will receive detailed information sheets explaining the purpose, procedures, and voluntary nature of the study. Consent will be obtained in writing or electronically.

- Confidentiality:  
All data will be anonymized. Codes or pseudonyms will replace names and organizations. Digital files will be stored securely with password protection.
- Right to Withdraw:  
Participants may withdraw from the study at any time without any negative consequences.
- Data Protection:  
Data will be retained securely for a defined period (e.g., 5 years) and then permanently deleted in compliance with institutional policies.
- Non-Maleficence:  
Care will be taken to avoid any harm or undue pressure on participants, particularly when discussing potentially sensitive organizational practices.
- Ethical Approval:  
Prior to data collection, ethics clearance will be sought from the appropriate university research ethics committee (Dharmawati et al., 2023).

## RESULTS AND DISCUSSION

### Strategic Use of HR Analytics to Identify Accounting Skill Gaps

Participants reported that HR analytics tools were used not only to monitor employee performance but also to detect competency gaps within the accounting function. Examples include:

- Using HR dashboards to track skill levels related to ERP systems (Mukhsin et al., 2024).
- Predictive modeling to forecast upskilling needs ahead of accounting software upgrades.

Quote: “We noticed that errors in financial reporting correlated with lower system proficiency scores from our HR analytics platform.” – (HR Manager, Company C)

### HR-Driven Digital Learning Initiatives

HR departments used insights from analytics to design targeted training programs for accountants, focusing on:

- Cloud accounting tools (e.g., Xero, QuickBooks, SAP)
- Data visualization for financial reporting
- Internal control compliance in digital systems

Quote: “We moved from blanket training to personalized learning paths based on analytics.” – (L&D Specialist, Company A)

### Cross-Functional Collaboration Enables Optimization

Digital transformation success was higher when HR, accounting, and IT teams collaborated. HR analytics served as a bridge between departments.

Quote: “Our HR analytics insights shaped how we redesigned accounting workflows, especially post-ERP implementation.” – (CFO, Company F)

### Perceived Impact on Accounting Process Efficiency

Most participants perceived improvements in:

- Accuracy of journal entries
- Speed of monthly closings
- Error reduction in tax filings

Quote: “We saw a 30% reduction in reconciliation errors after aligning analytics-driven training with our digital accounting timeline.” – (Finance Controller, Company B)

## Discussion

This study provides empirical evidence that HR analytics is evolving from an internal HR tool into a cross-functional strategic enabler, particularly in the domain of digital accounting (Suhardjo et al., 2024). Organizations that integrated HR analytics into their transformation strategy were better able to anticipate digital skill gaps, deliver targeted training, and achieve tangible improvements in financial workflows (Suhardjo, Suharti, et al., 2023).

The findings align with the Resource-Based View (RBV), which highlights the strategic advantage of leveraging internal intangible resources, such as workforce data and digital competencies, to enhance organizational performance. HR analytics, when strategically implemented, becomes a valuable and inimitable resource driving digital capability from within.

Additionally, the study emphasizes the critical role of employee competency development as a mediator between analytics insight and performance outcome, something previous accounting transformation research has often overlooked.

## Novelty Discussion

This research presents three major novel contributions:

### 1. Cross-Functional Role of HR Analytics

Unlike existing literature that treats HR analytics in isolation, this study demonstrates its direct application to accounting process optimization. It shows how HR data is not just for talent planning, but for real-time operational improvement.

### 2. Competency Development as a Strategic Lever

The study positions employee digital competency development, informed by analytics, as a strategic bridge between HR initiatives and financial process outcomes. This mediating role is rarely explored in digital accounting research.

### 3. Integrated Framework for Practice

The findings enable the development of a practical integrative framework linking HR analytics inputs, competency strategies, cross-functional alignment, and accounting outcomes. This has real-world value for organizations struggling with fragmented digital transformation efforts.

After this novelty discussion, we could make an new measurement for new variables that can be seen on appendix.

## Summary of Contributions

Advances understanding of how HR analytics can be used to optimize non-HR business functions. Fills a literature gap on how qualitative dynamics shape the impact of HR strategies on accounting performance. Provides a new lens for researchers and practitioners to approach digital transformation, not just through technology, but through data-enabled people strategy.

## CONCLUSION

### Conclusion

This study explored how organizations design and implement Human Resource Analytics (HRA) strategies to optimize digital business accounting processes. The findings reveal that when HRA is applied cross-functionally, it becomes a powerful enabler of digital transformation by identifying skill gaps, informing targeted training, and improving accounting process outcomes such as accuracy and efficiency. The research demonstrates that employee competency development mediates the relationship between HR analytics and process optimization, confirming that human capital readiness is central to realizing the value of digital accounting systems.

This work contributes a novel perspective on the strategic integration of HR analytics with digital accounting practices and offers an evidence-based framework that bridges HR and finance domains.

## Implications

**Theoretical Implications.** Extends the Resource-Based View (RBV) by showing how analytics-enabled human capital can be a valuable, rare, and inimitable resource that drives digital accounting performance. Bridges a gap in the literature by integrating insights from HR analytics, digital competency development (Istiana et al., 2022), and accounting process optimization.

**Practical Implications.** HR and Finance leaders should collaborate to embed HR analytics into transformation projects, ensuring that skill gaps are identified and addressed proactively. Organizations can enhance the impact of digital accounting initiatives by investing in personalized training programs informed by workforce data rather than generic upskilling. Establishing cross-functional governance structures can improve accountability and accelerate digital maturity (Renaldo et al., 2022).

## Limitations

This study has several limitations:

- The sample size (14 participants) limits generalizability; findings reflect experiences within a specific set of organizations.
- The focus was on medium and large enterprises, so results may not apply to small businesses or sectors with low digital maturity.
- Self-reported perceptions of impact could introduce bias, as objective performance metrics were not fully triangulated in all cases.
- The study examined implementation experiences rather than long-term outcomes.

## Recommendations

Organizations should formally embed HR analytics in digital accounting transformation roadmaps and assign cross-functional champions to oversee integration. Training and upskilling should be designed dynamically, using analytics to adapt content and pacing based on evolving needs. Develop shared metrics linking HR analytics insights to accounting process KPIs to track progress and justify investments. Leaders should promote a culture that values data-driven decision-making across HR and Finance functions.

## Future Research Directions

Future studies can build on these findings by:

- Conducting quantitative research to measure the statistical relationship between HR analytics maturity and accounting process performance.
- Exploring the long-term impact of HR analytics-enabled training on financial reporting quality and compliance outcomes.
- Comparing different industries (e.g., financial services vs. manufacturing) to assess contextual influences on integration success.
- Examining how artificial intelligence and advanced predictive analytics in HR can further enhance accounting process optimization.
- Investigating employee perspectives to understand how analytics-driven training affects engagement and retention.

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## Appendix

### Measurement Model Design for Quantitative Study

#### Construct 1: Cross-Functional Role of HR Analytics (CF-HRA)

Definition: The extent to which HR analytics is used beyond HR functions, particularly to support and improve operational business processes such as accounting.

Indicators: (measured using Likert scale 1–5)

- Our organization uses HR analytics to support decision-making in non-HR departments.
- HR data is actively used to improve accounting or financial processes.
- HR and accounting teams collaborate using shared analytics dashboards.
- HR analytics insights have led to operational improvements in financial workflows.

#### Construct 2: Analytics-Driven Competency Development (ADC)

Definition: The use of HR analytics insights to guide personalized digital upskilling and training initiatives for employees, especially in accounting and finance roles.

Indicators:

- Our organization uses analytics to identify skill gaps in accounting staff.
- Training programs are tailored based on employee competency data.
- HR analytics has influenced the design of upskilling initiatives related to digital tools.
- Employee readiness for digital systems is evaluated using analytics-based metrics.

#### Construct 3: Optimization of Digital Accounting Processes (ODAP)

Definition: The perceived improvements in accuracy, efficiency, and reliability of accounting processes due to HR-analytics-enabled interventions.

Indicators:

- Digital accounting process efficiency has improved in the past year.
- Error rates in digital financial reporting have decreased.

- Financial close cycles have become faster and more reliable.
- HR and training interventions have contributed to smoother accounting digitization.

#### **Construct 4: Integrated Framework Alignment (IFA) (Optional Higher-Order Construct)**

Definition: The degree to which HR analytics, competency development, and accounting objectives are aligned in a structured and strategic framework.

Indicators:

- Our digital transformation roadmap integrates HR and accounting strategies.
- There is structured alignment between competency development and accounting process needs.
- Analytics data from HR is regularly reviewed by accounting leadership.
- Cross-functional transformation initiatives involve joint HR-accounting planning.

#### **Model Hypothesis (Example for SEM/PLS-SEM)**

We may propose the following relationships:

- H1: CF-HRA → ADC (Cross-functional HR analytics positively influences analytics-driven competency development)
- H2: ADC → ODAP (Analytics-driven competency development positively influences accounting process optimization)
- H3: CF-HRA → ODAP (Cross-functional HR analytics directly influences optimization of digital accounting processes)
- H4: IFA moderates/mediates the relationship between CF-HRA and ODAP

#### **Next Steps for Implementation**

1. Instrument Development. Develop a questionnaire using the indicators above (can be validated via expert judgment and pilot study).
2. Pilot Testing. Test the reliability (Cronbach's Alpha), validity (AVE, Composite Reliability), and factor loading.
3. Sampling & Data Collection. Use purposive or stratified sampling (e.g., HR and Accounting professionals). Minimum N=150 if using SEM.
4. Analysis. Apply PLS-SEM or AMOS for model testing. Test path coefficients, R<sup>2</sup>, and model fit indices.