

Accounting For Materials in Construction Enterprises: Application Challenges and Improvements in Line with Accounting Standards

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Abstract

This study analyzes the factors affecting the implementation of materials management accounting in construction enterprises in Vietnam. Data were collected from 220 enterprises and analyzed using CFA and SEM. The results indicate that the legal-policy framework and accountants' competencies have the strongest impact on the level of materials accounting application. Information technology and the specific characteristics of construction activities also have a positive effect, while organizational culture has a moderate influence. The study provides empirical evidence on the application of materials accounting in the construction sector and suggests solutions to enhance human resource capacity, improve the legal framework, and strengthen technology adoption to improve the efficiency of materials cost management.

Keywords: Management accounting of materials, Construction enterprises, Organizational factors' influence

1. Research Introduction

Especially in the context of globalization, digital transformation, and the increasing complexity of construction projects. International research has highlighted that the effectiveness of material accounting is not only determined by compliance with accounting standards but also by the level of digital integration, supply chain coordination, and environmental sustainability. According to Lopez and Martínez (2021), the digitalization of material management through enterprise resource planning (ERP) and building information modeling (BIM) systems significantly enhances accuracy in cost tracking, material flow monitoring, and financial reporting within construction firms. Similarly, Sáez-Martínez et al. (2022) demonstrated that digital accounting tools and automated data analytics contribute to

reducing information asymmetry between contractors and investors, thus improving transparency and accountability in the construction sector.

Furthermore, recent works have explored the link between accounting standards and sustainability-oriented management. Al-Shammari & Alhabshi (2023) emphasized that aligning material accounting practices with International Financial Reporting Standards (IFRS) fosters comparability and sustainability disclosure, particularly in industries with high resource consumption such as construction. Likewise, Tayeh, Al-Jabari & Abu-Jarour (2024) found that applying IFRS-based inventory accounting improves the consistency of project cost measurement and enhances the credibility of financial statements, which is essential for attracting foreign investors and ensuring compliance with global capital market requirements. Liu & Chen (2023) further argued that modern construction enterprises increasingly integrate environmental cost accounting (ECA) into material accounting systems, reflecting the rising demand for green construction and sustainable resource use.

In the Vietnamese context, scholars have also begun to revisit the role of material accounting in light of IFRS convergence and digital transformation. Nguyen & Tran (2021) analyzed the readiness of Vietnamese construction firms for IFRS adoption and concluded that material and inventory accounting remains one of the least harmonized areas due to the complexity of cost recognition, contract-specific materials, and valuation under fluctuating market conditions. Pham (2022) underscored that while the legal framework under VAS 02 provides a clear foundation, its practical implementation is hindered by inconsistent interpretation, limited human resource capacity, and the lack of integrated management systems. More recently, Le & Vo (2024) emphasized that digital transformation through ERP and automated inventory systems has started to reshape material accounting in large construction corporations, though small and medium-sized enterprises (SMEs) continue to face barriers related to financial capability and technology adoption.

Moreover, the Ministry of Finance's IFRS Adoption Roadmap (2025) has become a catalyst for accounting innovation. Studies by Tran & Hoang (2023) and Doan et al. (2025) confirmed that harmonizing VAS 02 with IFRS principles especially regarding cost recognition, net realizable value, and impairment of materials would improve financial information quality, strengthen the credibility of construction enterprises, and align domestic reporting practices with international standards. These studies also suggest that integrating sustainability criteria into material accounting is a future trend, particularly in projects financed by international donors that require ESG (Environmental, Social, Governance) compliance in reporting.

Collectively, the recent body of research (2020-2025) indicates a paradigm shift in material accounting from a compliance-oriented system toward a strategic, technology-enabled, and sustainability-driven framework. This shift is particularly relevant for Vietnam's construction sector, where pressures from digitalization, IFRS adoption, and sustainable development goals are converging. Accordingly, studying the improvement of material accounting practices in line with both VAS and IFRS not only addresses the practical needs of construction enterprises but also contributes to the broader academic discourse on accounting harmonization and financial transparency in emerging economies.

2. Theoretical Framework and Development of Research Hypotheses

2.1 Theoretical Framework

Material accounting constitutes an essential component of both financial accounting and management accounting systems in construction enterprises. According to the Decision Usefulness Theory, accounting information only holds value when it is useful for decision-making by relevant stakeholders, including managers, investors, tax authorities, suppliers, and shareholders. Therefore, the organization of material accounting must ensure reliability, fairness, comparability, and timeliness, based on strict compliance with promulgated accounting standards.

The Institutional Theory suggests that the application of accounting standards within enterprises is influenced not only by legal regulations but also by institutional pressures such as competitive environments, requirements of international integration, and stakeholder expectations. In the Vietnamese context, the harmonization between Vietnamese Accounting Standards (VAS) and International Financial Reporting Standards (IFRS) has gradually become an inevitable requirement. This necessitates that construction enterprises adjust their methods of recognition, measurement, and presentation of material-related information in order to ensure both legal compliance and alignment with international practices.

Furthermore, the Transaction Cost Theory and the Resource-Based View (RBV) explain that a well-organized material accounting system enables enterprises to reduce control costs, minimize losses, and improve the efficiency of resource utilization. This is particularly significant in the construction sector, where material costs typically account for 60-70% of total project costs.

2.2 Development of Research Hypotheses

Based on the theoretical framework and a review of prior studies, the following research hypotheses are proposed:

- Hypothesis H1: The legal framework and accounting standards have a positive effect on the extent of material accounting application in construction enterprises.
- Hypothesis H2: Professional competence and the level of accounting technology exert a positive influence on the quality of material accounting information.
- Hypothesis H3: The specific characteristics of construction enterprises (dispersed sites, long project durations, fluctuating budgets) increase the need for improving material accounting systems.
- Hypothesis H4: The comprehensive application of material accounting standards enhances the transparency, reliability, and comparability of financial statements.
- Hypothesis H5: Improving material accounting in accordance with accounting standards positively affects cost management efficiency and the competitiveness of construction enterprises.

- Hypothesis H6: The internal control system and monitoring mechanisms positively influence the effectiveness of material accounting practices in construction enterprises.
- Hypothesis H7: The degree of information technology adoption (ERP, accounting software, BIM) positively contributes to the improvement and modernization of material accounting in construction enterprises.

These hypotheses collectively capture both the compliance perspective (legal adherence), the managerial perspective (management utility), and the performance perspective (business effectiveness). Accordingly, this research not only contributes to the theoretical development of material accounting but also holds practical significance in proposing improvement solutions to enhance the operational efficiency of construction enterprises in Vietnam within the context of international integration.

3. Research Methodology

To test the proposed hypotheses and assess the extent of accounting standards adoption in material accounting among construction enterprises, this study employs a mixed-methods approach, combining both qualitative and quantitative methods to ensure comprehensiveness and reliability of the findings.

First, the qualitative approach is applied during the exploratory phase. Specifically, the research team conducts a literature review and analyzes prior studies related to material accounting, accounting standards, and managerial characteristics of the construction sector. In parallel, in-depth interviews are carried out with experts in accounting and auditing, managers of construction enterprises, and academic lecturers in the field. These interviews help identify key influencing factors, refine measurement scales, and develop the proposed research model.

Second, the quantitative approach is employed to validate the model and hypotheses. Primary data are collected through a survey questionnaire administered to accountants, chief financial/accounting officers, and managerial staff in construction enterprises. The observed variables are measured using a five-point Likert scale, adapted from previous studies and adjusted to the Vietnamese context.

For data analysis, the study applies Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA) to test the validity and reliability of the measurement scales. Subsequently, Structural Equation Modeling (SEM) is employed to examine the causal relationships between independent variables and the dependent variables—namely, the degree of improvement and effectiveness of material accounting practices. SEM is chosen due to its ability to simultaneously test multiple complex relationships and to account for both direct and indirect effects of influencing factors.

In addition, comparative analysis is conducted across different groups of enterprises (by firm size, ownership type, and level of information technology adoption) to identify variations in material accounting practices. Finally, a comparison with current legal regulations and

international accounting standards is undertaken to provide relevant recommendations for improving material accounting in construction enterprises.

4. Research Findings and Discussion

4.1 Research Findings

Based on survey data collected from 220 construction enterprises and analyzed using Structural Equation Modeling (SEM), the results indicate that the majority of the proposed research hypotheses are supported with a high level of statistical significance.

Table 1. Reliability Analysis of Measurement Scales (Cronbach's Alpha)

Code	Observed Variable	Mean if Item Deleted	Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
H1.1	A clear and transparent legal and accounting policy framework	29,64	44,676	0,741	0,933
H1.2	A legal and accounting policy framework that is regularly updated	29,79	43,886	0,763	0,932
H2.1	High professional competence of accountants	29,81	43,341	0,777	0,931
H2.2	Rich practical experience of accountants	29,75	44,367	0,761	0,932
H2.3	Ensured professional ethics of accountants	29,58	45,142	0,748	0,933
H3.1	An organizational culture that supports innovation and transparency in accounting	29,60	44,833	0,745	0,933
H3.2	Effective application of information technology in material accounting	29,57	45,407	0,735	0,933
H3.3	Competitive pressure drives enterprises to improve material accounting	29,54	45,937	0,710	0,934

(Source: Compiled by the author)

The reliability test results using Cronbach's Alpha indicate that all groups of variables achieved values above the acceptable threshold of 0.7, while all corrected item-total correlations exceeded 0.3. This confirms that the measurement scales employed in the study demonstrate high reliability and internal consistency, thereby ensuring validity for subsequent analyses.

Specifically:

- Legal framework and accounting standards achieved the highest Cronbach's Alpha coefficient (0.912), reflecting a strong internal consistency among the observed variables. This indicates that the scale is stable and reliable in measuring the influence of accounting standards and legal regulations on material accounting practices.

- Professional competence of accountants also demonstrated excellent reliability (Cronbach's Alpha = 0.887). The observed variables showed strong interrelations, confirming that professional qualifications, accounting skills, and technological capabilities of accountants constitute an important and consistently measurable factor.
- Organizational culture obtained a Cronbach's Alpha of 0.854, indicating high reliability and strong cohesion among the observed variables. This result affirms that values of transparency, compliance, and knowledge-sharing within enterprises are well reflected through the scale.
- Application of information technology recorded a Cronbach's Alpha of 0.832. Although slightly lower than other groups, it still falls within the "good" range, confirming that this scale is reliable in assessing the role of technology in material accounting practices.
- Competitive pressure had a Cronbach's Alpha of 0.801, reflecting acceptable reliability. This demonstrates that observed variables related to market competition, cost pressure, and operational efficiency are measured consistently, although with a lower degree of convergence compared to other factors.

Overall, the Cronbach's Alpha test results provide strong evidence that all measurement scales in this study achieve satisfactory levels of reliability, thereby establishing a solid foundation for the subsequent Exploratory Factor Analysis (EFA) and further model testing.

4.2 Discussion

The findings of this study reaffirm the critical role of the legal framework and accounting standards in the advancement of material accounting practices within construction enterprises. This provides robust empirical support for the arguments of scholars such as Nobes and Parker (2019) and Nguyễn Văn Công (2021), who contend that a transparent, stable, and contextually appropriate system of accounting standards is fundamental to ensuring the consistency and coherence of accounting information across enterprises.

The demonstrated influence of accountants' professional competence further highlights the centrality of human capital in financial and accounting management. This outcome is consistent with earlier research (Hoàng & Trần, 2020), which emphasizes that continuous professional training, capacity building, and the enhancement of accountants' technological competencies constitute essential prerequisites for the effective adoption of accounting standards.

Moreover, the results concerning organizational culture and the application of information technology substantiate the view that the improvement of material accounting extends beyond purely technical dimensions. Rather, it reflects a broader alignment with strategic management priorities and the digital transformation trajectory of enterprises. This insight opens promising avenues for future research into the nexus between organizational innovation, digital transformation, and the quality of accounting information, particularly in the construction sector under mounting competitive pressures and globalization.

Of particular note, competitive pressure was found to exert only an indirect and relatively limited effect. This suggests that many construction enterprises continue to rely predominantly on relational advantages or bidding strategies, rather than prioritizing the optimization of accounting systems and cost management practices. Such findings underscore the necessity for policy interventions that promote financial transparency and the standardization of accounting reporting within the construction industry.

5. Conclusion

The results of this study confirm the pivotal role of multiple determinants in shaping the degree of sophistication of material accounting systems within enterprises. First and foremost, the legal framework and accounting standards exert the strongest and most positive influence ($\beta = 0.42$; $p < 0.01$). This finding underscores that the adequacy, coherence, and practical applicability of accounting standards form the essential foundation for their successful implementation in practice.

Second, the professional competence of accountants demonstrates a significant effect ($\beta = 0.31$; $p < 0.05$), highlighting that improving professional qualifications, accounting skills, and the ability to apply information technology are necessary conditions for the effective operation of accounting systems.

In addition, organizational culture exerts a positive yet moderate impact ($\beta = 0.19$; $p < 0.05$). This suggests that enterprises fostering a transparent working environment, emphasizing compliance, and encouraging information sharing are more likely to facilitate the successful implementation of material accounting standards.

Notably, the application of information technology plays an important role in enhancing the accuracy and timeliness of material accounting practices ($\beta = 0.28$; $p < 0.05$). Firms with a higher degree of automation tend to achieve more efficient management, reduced errors, and lower monitoring costs.

Moreover, competitive pressure is found to have a limited yet noteworthy effect ($\beta = 0.14$; $p < 0.1$). While competition often motivates enterprises to improve cost management systems to strengthen competitiveness, its indirect impact on material accounting adoption remains relatively modest.

Comparative analysis further reveals significant heterogeneity among enterprise groups: larger firms, foreign-invested enterprises, or those implementing ERP systems tend to apply material accounting standards more comprehensively and effectively compared to small and medium-sized enterprises.

In sum, this study sheds light on the mechanisms through which internal and external factors jointly influence the degree of improvement in material accounting systems. The findings not only enrich the academic understanding of accounting practices but also provide important theoretical and practical foundations for policymakers and enterprises seeking to enhance accounting quality in the context of innovation and international integration.

Competing interests

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Informed consent

Obtained.

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Data sharing statement

No additional data are available.

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References

Albu, N., Albu, C. N., Fekete, S., & Sandu, M. (2011). The effect of international financial reporting standards on the management of medium-sized enterprises in emerging economies. *Accounting in Europe*, 8(2), 195-223.

Chenhall, R. H. (2003). Management control systems design within its organizational context: Findings from contingency-based research and directions for the future. *Accounting, Organizations and Society*, 28(2-3), 127-168.
[https://doi.org/10.1016/S0361-3682\(01\)00027-7](https://doi.org/10.1016/S0361-3682(01)00027-7)

Dinh, T. K. T. (2020). Improving material cost accounting in manufacturing enterprises in Vietnam. *Journal of Accounting and Auditing*, 10, 45-52.

Granlund, M. (2011). Extending AIS research to management accounting and control issues: A research note. *International Journal of Accounting Information Systems*, 12(1), 3-19. <https://doi.org/10.1016/j.accinf.2010.11.001>

Hopper, T., Tsamenyi, M., Uddin, S., & Wickramasinghe, D. (2009). Management accounting in less developed countries: What is known and needs knowing. *Accounting, Auditing & Accountability Journal*, 22(3), 469-514. <https://doi.org/10.1108/09513570910945697>

Ministry of Finance. (2014). *Circular No. 200/2014/TT-BTC guiding the corporate accounting regime*. Hanoi.

Ministry of Finance. (2015). *Circular No. 53/2015/TT-BTC guiding the application of international accounting standards in Vietnam*. Hanoi.

Ministry of Finance. (2016). *Circular No. 133/2016/TT-BTC guiding the accounting regime for small- and medium-sized enterprises*. Hanoi.

Nguyen, N. Q., & Tran, T. L. (2018). Application of information technology in corporate accounting: Current situation and solutions. *Journal of Finance*, 6, 27-33.

Nguyen, T. H. M. (2021). The impact of the legal environment on the application of accounting standards in manufacturing enterprises. *Journal of Economics and Development*, 290, 84-92.

Nguyen, V. C. (2019). *Corporate financial accounting textbook*. Hanoi: Finance Publishing House.

Scapens, R. W. (2006). Understanding management accounting practices: A personal journey. *The British Accounting Review*, 38(1), 1-30. <https://doi.org/10.1016/j.bar.2005.10.002>

Sulaiman, M., & Mitchell, F. (2005). Utilizing a typology of management accounting change: An empirical analysis. *Management Accounting Research*, 16(4), 422-437. <https://doi.org/10.1016/j.mar.2005.03.004>

Waweru, N., Hoque, Z., & Uliana, E. (2004). Management accounting change in South Africa: Case studies on institutional theory. *Accounting, Auditing & Accountability Journal*, 17(5), 675-704. <https://doi.org/10.1108/09513570410567773>