

Examining the Impact of Project Accounting Digitalization and IFRS 15–Based ERP Systems on Revenue Recognition Quality in Construction Firms

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ABSTRACT

This study aimed to examine the impact of project accounting digitalization and IFRS 15–based ERP systems on revenue recognition quality in construction firms, with emphasis on the mediating role of internal control quality. The study employed a quantitative, explanatory research design using Structural Equation Modeling (SEM) to test the proposed relationships among variables. Data were collected through a structured questionnaire distributed electronically among accounting managers, project accountants, financial controllers, and internal auditors working in construction and project-based firms. From 235 distributed questionnaires, 210 valid responses were retained for final analysis. The study examined four main constructs, including Project Accounting Digitalization (PAD), IFRS 15–Based ERP Implementation (ERP_IFRS), Internal Control Quality (ICQ), and Revenue Recognition Quality (RRQ). All variables were measured using multiple-item Likert-scale instruments adapted from prior accounting and information systems literature. Data analysis was conducted using AMOS 26 software through measurement model assessment, structural model estimation, and mediation analysis using bootstrapping procedures. The results demonstrated that the proposed model achieved satisfactory fit indices, including $\chi^2/df = 2.14$, RMSEA = 0.061, CFI = 0.94, TLI = 0.92, and SRMR = 0.052. Structural model analysis showed that Project Accounting Digitalization had a positive and significant effect on Revenue Recognition Quality ($\beta = 0.31$, $t = 4.12$, $p < 0.001$). Similarly, IFRS 15–Based ERP Implementation positively affected Revenue Recognition Quality ($\beta = 0.37$, $t = 4.65$, $p < 0.001$). Internal Control Quality also demonstrated a significant positive effect on Revenue Recognition Quality ($\beta = 0.42$, $t = 5.18$, $p < 0.001$). Mediation analysis confirmed that Internal Control Quality partially mediated the relationships between PAD and RRQ ($\beta = 0.19$, $t = 3.44$) and between ERP_IFRS and RRQ ($\beta = 0.22$, $t = 3.81$). Additionally, firm size showed a significant positive effect on revenue recognition quality, while financial leverage was not statistically significant. The findings indicate that digital accounting transformation and IFRS 15–aligned ERP systems significantly enhance the accuracy, transparency, and reliability of revenue recognition practices in construction firms. Furthermore, the effectiveness of these technological capabilities is strengthened through high-quality internal control systems. The study highlights the strategic importance of integrating digital accounting infrastructures with strong governance and internal control mechanisms to improve financial reporting quality in project-based industries.

Keywords: Project accounting digitalization; ERP systems; IFRS 15; Revenue recognition quality; Internal control quality; Construction firms.



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Introduction

The rapid advancement of digital technologies has fundamentally transformed accounting systems, financial reporting practices, and organizational governance structures across industries. In recent years, organizations have increasingly adopted digital accounting infrastructures, enterprise resource planning (ERP) systems, cloud-based financial platforms, artificial intelligence applications, and integrated reporting technologies to improve operational efficiency and financial transparency (1, 2). Digitalization has enabled organizations to automate financial processes, enhance real-time reporting capabilities, improve information accessibility, and strengthen managerial decision-making processes. As accounting environments become increasingly data-driven, the role of accounting systems has evolved from simple transaction recording toward strategic information management and predictive financial analysis (3, 4). These transformations have become particularly important in industries characterized by complex contractual arrangements and long-term projects, where accurate revenue recognition and financial reporting require extensive integration of operational and accounting information.

Within this context, International Financial Reporting Standard 15 (IFRS 15), titled “Revenue from Contracts with Customers,” has emerged as one of the most influential accounting standards affecting revenue recognition practices globally. IFRS 15 introduced a comprehensive principles-based framework designed to standardize the recognition of revenue across industries and jurisdictions. The standard requires organizations to recognize revenue based on the transfer of control of goods or services to customers through a five-step model involving contract identification, performance obligation analysis, transaction price determination, allocation procedures, and revenue recognition timing (5, 6). The implementation of IFRS 15 represented a substantial shift from previous rule-based approaches to a more judgment-oriented and integrated framework, thereby increasing the importance of sophisticated accounting information systems capable of managing contractual complexity and financial estimation processes.

The implications of IFRS 15 have been particularly significant in project-based industries such as construction, telecommunications, real estate, engineering, and infrastructure development. In these sectors, organizations frequently engage in long-term contracts involving multiple performance obligations, contract modifications, uncertain completion schedules, variable consideration, and evolving cost structures (7, 8). Such characteristics increase the complexity of revenue recognition and heighten the risk of financial misstatements, earnings manipulation, and reporting inconsistencies. Construction firms, in particular, often rely on percentage-of-completion methods, project milestone assessments, and cost-to-cost estimations that require continuous monitoring and accurate financial integration (9, 10). Consequently, the successful implementation of IFRS 15 in project-based industries depends heavily on the effectiveness of accounting technologies and organizational control systems.

Previous research has demonstrated that IFRS 15 significantly influences financial reporting quality, earnings management practices, and the comparability of financial statements across firms and industries. Studies have shown that the implementation of IFRS 15 can improve the transparency and consistency of revenue reporting when organizations possess sufficient technological capabilities and governance mechanisms (11, 12). At the same time, the adoption of the standard has generated substantial implementation challenges, including increased compliance costs, difficulties in contract interpretation, and higher dependence on managerial judgment (13, 14).

These challenges have intensified the need for integrated ERP systems and advanced accounting technologies capable of supporting accurate revenue allocation, contract monitoring, and financial disclosure processes.

ERP systems have become one of the primary technological tools supporting organizational adaptation to IFRS 15 requirements. ERP platforms integrate financial accounting, project management, procurement, operational control, and customer contract management into a centralized information system, thereby enabling organizations to process large volumes of financial and operational data more efficiently (2, 15). Modern ERP systems facilitate automated documentation, real-time transaction monitoring, performance obligation tracking, and dynamic financial estimation procedures, all of which are essential for compliance with IFRS 15. Through centralized databases and integrated workflows, ERP technologies reduce information fragmentation and enhance the reliability of financial reporting processes (16, 17).

The growing integration of digital accounting systems with IFRS 15 implementation has also reshaped organizational governance and internal control practices. Effective internal controls are critical for ensuring the accuracy, completeness, and reliability of financial information. Digital accounting systems frequently incorporate automated control features such as segregation of duties, authorization procedures, audit trails, exception reporting, and continuous transaction monitoring (18, 19). These mechanisms strengthen financial governance structures and reduce the likelihood of fraud, manipulation, and reporting errors. In project-based industries where contractual complexity is high, internal control quality becomes particularly important because revenue recognition decisions often rely on managerial estimates, project progress evaluations, and contract modification assessments.

Several empirical studies have examined the relationship between IFRS implementation and financial reporting quality in different institutional environments. Research conducted in emerging economies suggests that IFRS 15 adoption can improve earnings quality, reporting transparency, and financial comparability when supported by robust accounting infrastructures and regulatory oversight (20, 21). However, other studies have emphasized that the effectiveness of IFRS 15 implementation varies considerably across industries and organizational contexts due to differences in managerial expertise, technological maturity, and institutional enforcement mechanisms (22, 23). These findings indicate that technological capabilities alone may not guarantee high-quality revenue recognition unless accompanied by effective governance systems and organizational competencies.

The role of digital transformation in accounting has become even more critical in periods of economic uncertainty and operational disruption. The COVID-19 pandemic accelerated the adoption of digital financial technologies and remote accounting systems while simultaneously increasing uncertainty in contract performance, revenue estimation, and financial forecasting (24, 25). Organizations were required to adapt rapidly to changing operational environments while maintaining compliance with complex accounting standards. In this context, integrated ERP systems and digital accounting platforms provided organizations with greater flexibility in monitoring contractual obligations, reassessing revenue estimates, and maintaining financial reporting continuity under uncertain conditions. The pandemic highlighted the strategic importance of resilient accounting infrastructures capable of supporting organizational adaptability and reporting reliability.

In addition to technological developments, increasing attention has been directed toward the role of accounting standards in improving financial statement comparability and reducing information asymmetry in capital markets. Financial statement comparability enhances investors' ability to evaluate organizational performance and reduces uncertainty associated with managerial reporting discretion (26, 27). IFRS 15 contributes to this objective by establishing standardized principles for recognizing revenue across industries and jurisdictions. However, the

standard also increases reliance on managerial estimates and contractual interpretation, thereby creating opportunities for earnings management and subjective reporting behavior if internal controls are weak (10, 11). Therefore, understanding how digital accounting systems and ERP technologies interact with internal control quality to influence revenue recognition practices has become an important area of academic and practical investigation.

Research on the implementation of IFRS 15 within construction and real estate industries has produced mixed findings regarding its effectiveness and operational consequences. Some studies have reported improvements in financial reporting transparency, enhanced revenue management procedures, and more accurate project accounting practices following IFRS 15 implementation (12, 17). Other studies have identified operational difficulties associated with contract estimation, disclosure requirements, and system integration processes (5, 7). In emerging markets, organizations frequently encounter additional challenges related to technological infrastructure limitations, insufficient professional training, and inconsistent regulatory enforcement (16, 22). These issues underscore the importance of examining the organizational conditions under which IFRS 15 implementation contributes to improved revenue recognition quality.

Theoretical perspectives on accounting digitalization suggest that organizational performance and reporting quality are increasingly dependent on the integration of technological resources with governance capabilities and institutional structures. Digital accounting systems provide opportunities for enhanced automation, predictive analytics, and operational coordination, but their effectiveness depends on organizational readiness, managerial expertise, and control system quality (1, 3). Similarly, ERP implementation is not merely a technological process but also an organizational transformation involving changes in workflows, decision-making structures, and financial control mechanisms (15, 19). As a result, the relationship between digital accounting technologies and revenue recognition quality should be examined within a broader organizational and governance framework.

Despite the expanding literature on IFRS 15, ERP systems, and digital accounting transformation, important research gaps remain. Much of the existing research has focused either on the technical aspects of IFRS 15 implementation or on the general impact of digitalization on accounting processes. Relatively limited empirical evidence exists regarding how project accounting digitalization and IFRS 15–based ERP systems jointly influence revenue recognition quality within project-based organizations. Furthermore, although internal control systems are frequently discussed as essential components of financial reporting quality, their mediating role in the relationship between digital accounting technologies and revenue recognition outcomes has received insufficient empirical attention in prior studies (20, 21). Additionally, most prior studies have concentrated on developed markets or broad industry samples, while fewer investigations have specifically examined project-based construction firms operating under complex contractual environments.

Construction firms represent a particularly relevant context for examining these relationships because revenue recognition in construction projects requires continuous monitoring of project progress, contract modifications, cost estimations, and performance obligations. The adoption of digital accounting technologies and IFRS 15–aligned ERP systems may significantly improve the ability of these firms to manage financial complexity, enhance reporting transparency, and strengthen internal control procedures. However, the extent to which such technologies contribute to revenue recognition quality remains insufficiently understood, particularly in emerging and project-intensive organizational environments.

Accordingly, this study aims to examine the impact of project accounting digitalization and IFRS 15–based ERP systems on revenue recognition quality in construction firms, with particular emphasis on the mediating role of internal control quality.

Methods and Materials

This study employed a quantitative, applied, and explanatory research design to investigate the impact of project accounting digitalization and IFRS 15–based ERP systems on revenue recognition quality in construction firms, with emphasis on the mediating role of internal control quality. Considering the multidimensional relationships among technological capabilities, governance mechanisms, and financial reporting outcomes, the study utilized a correlational design based on Structural Equation Modeling (SEM). The statistical population consisted of accounting professionals, financial managers, project accountants, financial controllers, and internal auditors employed in project-based construction companies actively engaged in long-term contractual operations. These organizations were selected because construction firms typically operate within highly complex contractual environments where revenue recognition under IFRS 15 requires extensive coordination among financial reporting systems, project monitoring procedures, and internal control mechanisms. Data were collected through a structured electronic questionnaire distributed through professional accounting and financial management networks. A total of 235 questionnaires were distributed among eligible respondents, and after excluding incomplete and inconsistent responses, 210 valid questionnaires were retained for final analysis. The final sample size was considered appropriate for Structural Equation Modeling, as SEM techniques generally require a minimum sample of approximately 200 observations to ensure reliable parameter estimation and model stability. Due to limitations associated with access to the entire population of professionals working in project-based construction organizations, a non-probability convenience sampling method was employed. Participation in the study was voluntary, and respondents were informed about the confidentiality and academic purpose of the research before completing the questionnaire.

Data collection was conducted using a structured researcher-administered questionnaire developed based on prior literature in accounting information systems, ERP implementation, digital transformation, and financial reporting quality. The questionnaire measured four principal constructs, including Project Accounting Digitalization (PAD), IFRS 15–Based ERP Implementation (ERP_IFRS), Internal Control Quality (ICQ), and Revenue Recognition Quality (RRQ). Project Accounting Digitalization was assessed through items examining the extent to which organizations utilized digital technologies for automating project accounting activities, integrating financial and operational information, monitoring project progress in real time, and improving project-related financial reporting procedures. IFRS 15–Based ERP Implementation was measured using indicators related to the ability of ERP systems to support contract management, performance obligation tracking, revenue allocation, project monitoring, and compliance with IFRS 15 requirements. Internal Control Quality was evaluated through items assessing organizational control procedures, authorization mechanisms, monitoring systems, segregation of duties, transaction traceability, and audit trail effectiveness. Revenue Recognition Quality was measured based on indicators reflecting the accuracy, transparency, reliability, consistency, and compliance of revenue reporting practices with IFRS 15 standards. All questionnaire items were adapted from previously validated instruments in the accounting and financial reporting literature and were measured using a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). In addition to the primary constructs, two control variables were included

in the model. Firm Size (SIZE) was measured using the natural logarithm of total assets, while Financial Leverage (LE) was calculated as the ratio of total debt to total assets. To ensure content validity, the questionnaire was reviewed by several academic experts and accounting professionals familiar with ERP systems and IFRS implementation. Reliability and construct validity were subsequently assessed through Cronbach's alpha, Composite Reliability (CR), Average Variance Extracted (AVE), and discriminant validity analysis within the measurement model evaluation process.

The collected data were analyzed using Structural Equation Modeling (SEM) with AMOS 26 software. Data analysis was conducted in several sequential stages to ensure the reliability and validity of the research findings. Initially, preliminary statistical analyses were performed to evaluate the descriptive characteristics of the data, assess normality assumptions, and examine multicollinearity among variables. Subsequently, the measurement model was evaluated to assess construct reliability and validity. Reliability assessment included Cronbach's alpha coefficients and Composite Reliability (CR) values for all latent variables, while convergent validity was examined through Average Variance Extracted (AVE). Discriminant validity was evaluated using the Fornell–Larcker criterion to confirm that each construct was empirically distinct from the others. After establishing the adequacy of the measurement model, the structural model was estimated to examine the hypothesized relationships among Project Accounting Digitalization, IFRS 15–Based ERP Implementation, Internal Control Quality, and Revenue Recognition Quality. Both direct and indirect effects were analyzed within the SEM framework. The mediating role of Internal Control Quality was examined using bootstrapping procedures, which provided robust estimates of indirect effects and confidence intervals without requiring normal distribution assumptions. In addition, overall model fit was evaluated using several widely accepted fit indices, including the chi-square to degrees of freedom ratio (χ^2/df), Root Mean Square Error of Approximation (RMSEA), Comparative Fit Index (CFI), Tucker–Lewis Index (TLI), and Standardized Root Mean Square Residual (SRMR). The accepted threshold values for these indices confirmed the adequacy and fitness of both the measurement and structural models.

Findings and Results

The results of the Structural Equation Modeling (SEM) analysis are presented in this section. Initially, the overall goodness-of-fit indices were examined to evaluate the adequacy of the conceptual model. Subsequently, the reliability and validity of the measurement model were assessed, followed by hypothesis testing, mediation analysis, and evaluation of the control variables.

The goodness-of-fit indices demonstrated that the proposed conceptual model achieved an acceptable fit with the observed data. The ratio of chi-square to degrees of freedom (χ^2/df) was 2.14, which was below the recommended threshold value of 3, indicating satisfactory model fit. In addition, the Root Mean Square Error of Approximation (RMSEA) was 0.061, remaining within the acceptable range below 0.08. The Comparative Fit Index (CFI) and Tucker–Lewis Index (TLI) were 0.94 and 0.92, respectively, both exceeding the recommended minimum threshold of 0.90. Furthermore, the Standardized Root Mean Square Residual (SRMR) was 0.052, which was below the maximum acceptable value of 0.08. Collectively, these findings confirmed that both the measurement and structural models demonstrated satisfactory overall fit and were appropriate for further analysis.

Before testing the structural relationships among the variables, the measurement model was evaluated to examine the reliability and validity of the research constructs. Table 1 presents the results related to internal consistency reliability and convergent validity.



Table 1. Measurement Model Reliability and Convergent Validity

Construct	Cronbach's Alpha	Composite Reliability (CR)	Average Variance Extracted (AVE)
PAD	0.86	0.89	0.62
ERP_IFRS	0.88	0.91	0.65
ICQ	0.84	0.88	0.60
RRQ	0.87	0.90	0.63

As shown in Table 1, Cronbach's alpha and Composite Reliability (CR) values for all constructs exceeded the recommended threshold of 0.70, indicating satisfactory internal consistency reliability. Moreover, the Average Variance Extracted (AVE) values for all variables were above the minimum acceptable level of 0.50, confirming adequate convergent validity for the measurement model constructs.

Discriminant validity was subsequently assessed using the Fornell–Larcker criterion. According to this criterion, the square root of the AVE for each construct should exceed the correlations between that construct and the remaining constructs. The results of this assessment are presented in Table 2.

Table 2. Discriminant Validity (Fornell–Larcker Criterion)

Construct	PAD	ERP_IFRS	ICQ	RRQ
PAD	0.79			
ERP_IFRS	0.41	0.81		
ICQ	0.46	0.49	0.77	
RRQ	0.38	0.44	0.52	0.79

Note: Diagonal values represent the square root of AVE.

The results reported in Table 2 demonstrated that the diagonal values representing the square root of AVE for each construct were greater than the corresponding inter-construct correlations. Therefore, adequate discriminant validity was confirmed, indicating that each construct was empirically distinct from the other constructs included in the model.

The structural relationships among the variables were examined using Structural Equation Modeling (SEM). The results of the hypothesis testing and structural path analysis are presented in Table 3.

Table 3. Structural Model Results

Hypothesis	Relationship	Path Coefficient (β)	t value	Result
H1	PAD \rightarrow RRQ	0.31	4.12	Supported
H2	ERP_IFRS \rightarrow RRQ	0.37	4.65	Supported
H3	ICQ \rightarrow RRQ	0.42	5.18	Supported
H4	PAD \rightarrow ICQ \rightarrow RRQ	0.19	3.44	Supported
H5	ERP_IFRS \rightarrow ICQ \rightarrow RRQ	0.22	3.81	Supported

The findings presented in Table 3 indicated that Project Accounting Digitalization (PAD) had a positive and statistically significant effect on Revenue Recognition Quality (RRQ) ($\beta = 0.31$, $t = 4.12$, $p < 0.001$), thereby supporting Hypothesis 1. Similarly, IFRS 15–Based ERP Implementation (ERP_IFRS) demonstrated a positive and statistically significant relationship with Revenue Recognition Quality ($\beta = 0.37$, $t = 4.65$, $p < 0.001$), supporting Hypothesis 2. Internal Control Quality (ICQ) also showed a significant positive effect on Revenue Recognition Quality ($\beta = 0.42$, $t = 5.18$, $p < 0.001$), confirming Hypothesis 3.

The mediating role of Internal Control Quality was examined using bootstrapping procedures within the SEM framework. The results revealed that Project Accounting Digitalization positively influenced Internal Control Quality, which subsequently improved Revenue Recognition Quality. The indirect effect of PAD on RRQ through ICQ was

statistically significant ($\beta = 0.19$, $t = 3.44$), indicating partial mediation and supporting Hypothesis 4. Likewise, IFRS 15–Based ERP Implementation significantly enhanced Internal Control Quality, which in turn improved Revenue Recognition Quality. The indirect effect of ERP_IFRS on RRQ through ICQ was also statistically significant ($\beta = 0.22$, $t = 3.81$), thereby supporting Hypothesis 5 and confirming the mediating role of Internal Control Quality in the proposed conceptual model.

In addition to the primary variables, two control variables, including Firm Size (SIZE) and Financial Leverage (LE), were incorporated into the structural model. The findings demonstrated that firm size had a positive and statistically significant effect on Revenue Recognition Quality ($\beta = 0.15$, $p < 0.05$), suggesting that larger firms may benefit from greater organizational resources, more advanced technological infrastructures, and more sophisticated accounting systems that improve the quality of revenue recognition practices. In contrast, Financial Leverage did not exhibit a statistically significant relationship with Revenue Recognition Quality ($p > 0.05$), indicating that debt levels did not directly influence revenue recognition practices within the sampled construction firms.

Overall, the empirical findings supported all proposed hypotheses and demonstrated that both Project Accounting Digitalization and IFRS 15–Based ERP Implementation significantly improved Revenue Recognition Quality both directly and indirectly through enhanced Internal Control Quality. These findings highlight the importance of integrating advanced digital accounting technologies with effective internal control mechanisms in order to improve the transparency, accuracy, and reliability of financial reporting in project-based organizations.

Discussion and Conclusion

The findings of the present study provide substantial empirical evidence regarding the significant role of project accounting digitalization and IFRS 15–based ERP systems in improving revenue recognition quality within construction firms. The results demonstrated that project accounting digitalization exerted a positive and statistically significant effect on revenue recognition quality. This finding suggests that the adoption of digital accounting technologies enables organizations to improve the accuracy, transparency, consistency, and timeliness of financial reporting processes associated with long-term contracts and project-based operations. In construction environments where contract modifications, cost estimations, performance obligations, and project milestones are continuously evolving, digitalized accounting systems facilitate real-time financial monitoring and automated reporting procedures, thereby reducing the likelihood of accounting errors and inconsistencies. This finding is consistent with previous studies emphasizing that digital accounting infrastructures improve organizational reporting quality through automation, data integration, and enhanced information accessibility (1, 3). Similarly, research conducted by Jayasuriya and Sims demonstrated that advanced accounting technologies and integrated digital platforms significantly enhance the reliability and operational efficiency of accounting systems (2). The present findings also align with prior research indicating that technological transformation in accounting systems contributes to more transparent and comparable financial reporting practices (12, 21).

The positive effect of project accounting digitalization on revenue recognition quality can be explained through several organizational and operational mechanisms. Digital accounting systems improve the ability of firms to capture large volumes of project-related financial data in real time while simultaneously integrating operational and accounting processes within centralized information structures. This integration enhances managerial oversight and reduces delays in recognizing contract revenues and associated expenses. In project-intensive industries such as construction, where revenue recognition often depends on percentage-of-completion calculations and continuous

reassessment of contractual obligations, digitalized systems strengthen financial accuracy and operational coordination. Previous research has similarly argued that digital technologies improve the traceability and comparability of accounting information while minimizing manual processing errors and information asymmetry (4, 26). Moreover, the findings are supported by studies emphasizing that digital accounting transformation enhances the quality of managerial judgments and reporting discipline in environments characterized by contractual complexity and uncertainty (18, 24).

The results further demonstrated that IFRS 15–based ERP implementation had a significant positive effect on revenue recognition quality. This finding indicates that ERP systems specifically aligned with IFRS 15 requirements improve the consistency and reliability of revenue recognition practices in construction firms. ERP platforms provide integrated environments in which contract management, project accounting, financial reporting, and operational monitoring are centralized within a unified system. Such integration enables organizations to apply the five-step revenue recognition framework of IFRS 15 more systematically and consistently. This result is highly consistent with previous studies suggesting that ERP implementation improves accounting information quality and enhances compliance with international accounting standards (15, 16). The findings are also aligned with prior research indicating that IFRS 15 implementation supported by integrated accounting systems contributes to improved earnings quality, financial comparability, and reporting transparency (5, 11).

The significant impact of ERP implementation on revenue recognition quality may also be interpreted through the operational capabilities of ERP systems in managing complex contractual arrangements. Construction firms often encounter multiple performance obligations, variable transaction prices, and project modifications that require continuous reassessment of revenue estimates. ERP systems aligned with IFRS 15 facilitate automated allocation of transaction prices, contract monitoring, and performance tracking, thereby reducing managerial discretion and increasing the reliability of financial statements. Previous studies similarly found that ERP-based accounting systems improve the consistency of revenue allocation and reduce the risk of reporting manipulation in project-based industries (6, 7). In addition, research conducted in emerging market environments demonstrated that integrated ERP systems strengthen financial reporting quality by supporting organizational compliance with complex accounting standards (20, 22). The present findings therefore reinforce the argument that technological integration is a critical determinant of successful IFRS 15 implementation.

Another important finding of the study was the significant positive effect of internal control quality on revenue recognition quality. This result suggests that organizations with stronger internal control systems are more capable of ensuring accurate and reliable financial reporting under IFRS 15. Internal controls provide mechanisms for transaction monitoring, authorization procedures, audit trails, segregation of duties, and continuous verification of financial information. In construction firms, where project accounting processes involve substantial managerial judgment and ongoing estimation procedures, effective internal controls reduce the risk of financial misstatements and enhance compliance with accounting standards. This finding is consistent with previous studies highlighting the importance of governance mechanisms and control procedures in improving accounting quality and reducing opportunistic financial reporting behavior (8, 19). Similarly, prior research emphasized that robust internal control systems contribute to greater financial transparency and operational accountability in organizations implementing IFRS-based reporting systems (12, 23).

The mediating role of internal control quality represented one of the most important contributions of the present study. The findings demonstrated that internal control quality partially mediated the relationships between project

accounting digitalization, IFRS 15–based ERP implementation, and revenue recognition quality. This indicates that digital technologies and ERP systems improve financial reporting quality not only directly but also indirectly through the strengthening of organizational control mechanisms. In other words, technological infrastructures become more effective when accompanied by strong governance frameworks and reliable control systems. This finding supports theoretical perspectives suggesting that technological capabilities alone are insufficient to guarantee high-quality financial reporting unless supported by appropriate organizational controls and managerial oversight mechanisms (3, 18). The results are also consistent with previous studies demonstrating that ERP systems and digital accounting platforms improve organizational governance by enabling automated monitoring, real-time reporting, and improved auditability (2, 15).

The mediating effect of internal control quality further suggests that organizations should view digital transformation as both a technological and organizational process. Construction firms implementing ERP systems and digital accounting technologies must simultaneously invest in internal governance structures, professional training, and monitoring mechanisms in order to maximize the benefits of technological innovation. Prior studies similarly reported that organizations with weak internal controls often fail to realize the full benefits of IFRS implementation because technological systems may still be subject to managerial manipulation, estimation errors, or inconsistent application of accounting principles (5, 10). Consequently, the present findings highlight the interconnected nature of technology, governance, and financial reporting quality in project-based industries.

The findings regarding firm size also provide important insights into organizational determinants of revenue recognition quality. The study demonstrated that larger firms exhibited higher levels of revenue recognition quality, likely due to greater financial resources, more sophisticated accounting infrastructures, and stronger governance mechanisms. Larger organizations are generally more capable of investing in advanced ERP systems, digital accounting technologies, and professional expertise necessary for implementing IFRS 15 effectively. This finding aligns with previous studies reporting that organizational scale positively influences accounting system sophistication and financial reporting quality (20, 21). In contrast, financial leverage did not demonstrate a statistically significant relationship with revenue recognition quality, suggesting that debt levels may not directly influence reporting practices within the sampled construction firms. This finding may indicate that technological and governance factors exert stronger influences on revenue recognition quality than financing structure within project-based environments.

From a theoretical perspective, the study contributes to the literature on accounting digitalization, ERP implementation, and IFRS adoption by integrating technological and governance perspectives within a unified conceptual framework. Previous research often examined digital transformation or IFRS implementation separately, whereas the present study demonstrates that revenue recognition quality in project-based firms is jointly influenced by digital accounting systems, ERP technologies, and internal control quality. The findings therefore extend existing accounting and information systems literature by providing empirical evidence regarding the organizational mechanisms through which technological innovation improves financial reporting outcomes. In addition, the study contributes to research on emerging economies and project-based industries by highlighting the importance of integrated accounting infrastructures in complex contractual environments (17, 22).

The results also possess important practical implications for managers, auditors, policymakers, and accounting technology providers. For managers operating in construction and project-based industries, the findings emphasize the importance of investing in digital accounting systems and IFRS 15–aligned ERP platforms capable of supporting

real-time project monitoring and integrated financial reporting. Such investments can improve operational transparency, reduce reporting risks, and strengthen organizational compliance with international accounting standards. For auditors and regulators, the findings underscore the necessity of evaluating both technological infrastructures and internal control systems when assessing the quality of revenue recognition practices. Furthermore, ERP developers and accounting software providers should focus on designing integrated systems that facilitate automated control procedures, performance obligation tracking, and comprehensive audit trails to support IFRS 15 compliance and reporting reliability (15, 16). Overall, the findings indicate that technological innovation and governance quality must operate together in order to improve revenue recognition practices effectively within project-based organizations.

One limitation of the present study is that the research focused primarily on construction firms operating within project-based environments, which may limit the generalizability of the findings to organizations in other industries with different operational and contractual structures. In addition, the study relied on cross-sectional data collected through self-reported questionnaires, which may introduce response bias and limit the ability to establish long-term causal relationships among the variables. Another limitation relates to the use of convenience sampling, which may reduce the representativeness of the sample despite the adequacy of the sample size for Structural Equation Modeling analysis.

Future research could expand the scope of investigation by examining the effects of digital accounting technologies and IFRS 15 implementation across multiple industries and countries in order to compare institutional and regulatory differences. Longitudinal studies may also provide deeper insights into how digital transformation and ERP implementation influence revenue recognition quality over time. In addition, future studies could investigate the role of emerging technologies such as artificial intelligence, blockchain, and predictive analytics in improving contract accounting and financial reporting quality. Researchers may also explore additional mediating or moderating variables, including organizational culture, managerial expertise, regulatory enforcement, and corporate governance quality.

From a practical perspective, organizations operating in project-based industries should prioritize investments in integrated ERP systems and digital accounting infrastructures capable of supporting accurate contract management and revenue recognition procedures. Managers should simultaneously strengthen internal control systems and provide continuous professional training for accounting personnel to ensure the effective implementation of IFRS 15 requirements. Regulatory authorities and professional accounting bodies should also develop practical implementation guidelines and training programs aimed at improving organizational readiness for digital accounting transformation and international financial reporting compliance.

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Authors' Contributions

All authors equally contributed to this study.

Declaration of Interest

The authors of this article declared no conflict of interest.

Ethical Considerations

All ethical principles were adhered in conducting and writing this article.

Transparency of Data

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

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