

Improving Accounting for Settlement Account Operations in an Innovation-Driven Economy

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Abstract. *The transition toward an innovation-driven economy has fundamentally transformed financial relations, accounting systems, and managerial decision-making processes. The rapid diffusion of digital technologies, electronic banking instruments, and automated accounting systems has significantly increased the volume and complexity of settlement account operations. Under these conditions, traditional accounting approaches are no longer sufficient to ensure the timeliness, accuracy, and transparency of financial information. This study aims to analyze the current state of accounting for settlement account operations in an innovation-driven economy, identify existing methodological and institutional limitations, and propose directions for improving accounting mechanisms based on modern digital technologies. The research applies a systemic and comparative methodology, drawing on Scopus-indexed settlement account accounting, incorporating indicators of digitalization, automation, and real-time data processing. The findings demonstrate that the integration of electronic banking, ERP systems, Big Data analytics, and artificial intelligence significantly enhances accounting efficiency, financial transparency, and managerial decision-making quality. The results contribute to the theoretical and methodological development of accounting systems and provide practical implications for enterprises operating in innovation-driven economic environments.*

Keywords: *innovation-driven economy, settlement account, accounting systems, digitalization, electronic banking, accounting efficiency*

Introduction

In recent decades, the emergence of an innovation-driven economy has caused profound structural transformations in production systems, financial architectures, and management practices on a global scale. The accelerated development of science and technology, coupled with the widespread adoption of digital technologies and the transition to a knowledge-based economic model, has imposed entirely new requirements on the operational mechanisms of economic entities. In this context, innovation is no longer limited to the development of new products, services, or technologies, it has become a central element in the organization of financial relations, the modernization of accounting systems, and the optimization of internal control mechanisms (Schumpeter, 1934; OECD, 2015). Innovation acts as a primary catalyst for economic growth, directly influencing enterprise competitiveness by enhancing productivity, fostering cost-efficiency, and facilitating the optimal allocation of resources. Furthermore, innovation improves the quality of managerial decision-making by providing more accurate, timely, and comprehensive financial information.

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Among the foundational prerequisites for sustainable enterprise development, the organization and accounting of financial flows occupy a particularly crucial position (Ahmadzade et al., 2025). Settlement account operations, which include both domestic and international cash transfers, payments, and settlements, are central to the circulation of monetary resources.

These operations ensure financial discipline, support liquidity management, and provide mechanisms for effective control over financial risks. Efficient management of settlement accounts thus contribute not only to operational stability but also to strategic decision-making and long-term enterprise resilience (Abdulhasanova & Aliyeva, 2024). The processes of globalization and rapid digital transformation have further reshaped the expectations and requirements placed upon accounting systems. Traditional accounting methods, which were developed under conditions of lower transaction volumes and slower information flows, are gradually losing their effectiveness in an era characterized by complex financial instruments, high-frequency transactions, and real-time financial monitoring. The increasing interconnectivity of financial markets, the rise of electronic banking platforms, and the proliferation of sophisticated financial instruments necessitate the adoption of automated accounting solutions and advanced digital technologies (Brynjolfsson & McAfee, 2014).

Consequently, enterprises are compelled to integrate electronic banking systems, implement digital workflows, and utilize advanced data analytics to maintain operational efficiency and ensure regulatory compliance. In an innovation-driven economic environment, the timeliness, accuracy, and transparency of financial information assume critical importance in managerial decision-making. Real-time accounting of settlement account operations enables managers to monitor liquidity positions instantaneously, anticipate cash flow shortages, and make informed investment decisions. The digital integration of banks and enterprises facilitates seamless transactions, reduces operational risks, and enhances overall financial performance (Ahmadova et al., 2026). Additionally, advanced analytical tools, such as predictive modeling, artificial intelligence-based forecasting, and blockchain-enabled auditing, allow for the proactive management of financial risks and the strategic optimization of resources. Consequently, improving the accounting of settlement account operations in alignment with modern technological requirements represents not only a pressing scientific challenge but also a significant practical necessity for contemporary enterprises. By combining the principles of innovative financial management with the capabilities of digital technologies, organizations can ensure a higher level of financial transparency, efficiency, and adaptability, ultimately reinforcing their competitive advantage in the rapidly evolving global economy. In summary, the integration of innovation into financial and accounting practices transforms the way enterprises manage their monetary resources. It requires a paradigm shift from traditional accounting approaches to more dynamic, automated, and technologically integrated systems. Such a transformation is essential for enterprises seeking to remain competitive, agile, and sustainable in an increasingly complex and innovation-driven global market.

Problem Statement and Research Objective

The rapid digitalization of financial relations and the increasing complexity of monetary transactions present a series of new challenges for enterprise accounting systems. In contemporary economic conditions, the volume and diversity of settlement account operations are expanding at an unprecedented rate. Enterprises are increasingly relying on electronic payment instruments, digital banking platforms, and automated financial services, which require highly reliable, accurate, and timely accounting information to support both operational and strategic decision-making (Adigozalova & Mammadova, 2020). Despite these developments, traditional accounting practices demonstrate significant limitations in addressing the demands of a modern, innovation-driven economy. Many existing systems are constrained by their inability to process and record financial flows in real time, lack comprehensive integration with contemporary information technologies, and exhibit partial or inadequate adaptation to innovative financial instruments such as digital wallets, blockchain-based settlements, and fintech-enabled cross-border transactions (Askarova, 2025). These

deficiencies create multiple operational challenges, including inconsistencies in financial data, delays in reporting, decreased transparency of financial operations, and ultimately, reduced effectiveness in managerial decision-making. Such challenges can adversely affect enterprise liquidity management, risk assessment, and long-term strategic planning, potentially undermining the overall financial stability of the organization. Given this context, the primary objective of the present study is to conduct a thorough analysis of the accounting of settlement account operations within innovation-driven economic conditions. The research aims to systematically identify and categorize existing challenges in current accounting practices, highlighting gaps in the recording, processing, and reporting of financial transactions. Furthermore, the study seeks to explore the potential of modern digital technologies—such as automated accounting systems, integrated enterprise resource planning (ERP) platforms, real-time financial analytics, and advanced digital banking solutions—to improve the accuracy, timeliness, and reliability of financial information. Specifically, this research pursues the following sub-objectives:

To examine the impact of innovation-driven economic dynamics on enterprise accounting processes, particularly in the context of settlement account operations.

To identify key deficiencies in current accounting mechanisms, including technological, procedural, and regulatory limitations.

To develop scientifically grounded recommendations for modernizing accounting practices by leveraging digital technologies and advanced financial management tools.

To propose strategies for enhancing the timeliness, transparency, and operational efficiency of financial information, thereby supporting more effective managerial decision-making. In summary, this study aims to bridge the gap between traditional accounting systems and the requirements of a rapidly evolving digital economy. By investigating the integration of modern technological solutions into the accounting of settlement account operations, the research seeks to provide both theoretical insights and practical guidance for enterprises striving to maintain competitiveness, operational efficiency, and financial stability in the contemporary innovation-driven economic landscape.

Scientific Contribution

This research makes a significant scientific contribution by advancing both the theoretical and practical understanding of accounting in the context of an innovation-driven and digitally transformed economy. The study addresses critical gaps in current accounting research and offers novel frameworks and models that enhance the efficiency, transparency, and strategic value of financial information. Firstly, the study develops a comprehensive conceptual framework for settlement account accounting, specifically adapted to the dynamics of a digital and innovation-oriented economic environment. This framework not only clarifies the evolving role of accounting in enterprises but also provides a structured methodology for integrating technological innovations into routine accounting practices. Secondly, the research provides a systematic and rigorous assessment of the impact of emerging digital technologies—including electronic banking, FinTech solutions, Big Data analytics, and artificial intelligence—on accounting efficiency. By examining these technologies, the study identifies key mechanisms through which digitalization improves accuracy, reduces operational costs, accelerates reporting processes, and enhances the overall quality of financial data. Thirdly, an integrated bank–enterprise data exchange framework is proposed, aimed at strengthening transparency, reliability, and timeliness in accounting reporting. This framework facilitates efficient and secure information flow between financial institutions and enterprises, thereby supporting managerial decision-making and reinforcing accountability in financial operations. Finally, the research introduces a quantitative model for evaluating accounting efficiency under conditions of digital transformation. This model enables empirical measurement of efficiency gains, supports benchmarking across organizations, and provides actionable insights for optimizing accounting practices in digitally enabled environments. Collectively, these contributions enrich the

theoretical and methodological foundations of accounting science while extending empirical knowledge on the digitalization of accounting processes. The study offers actionable frameworks and models that can guide practitioners, policymakers, and researchers in leveraging technological advancements to enhance the effectiveness, transparency, and strategic relevance of accounting in modern economies.

Methods

The methodological framework of this study is firmly grounded in established economic theory and contemporary research in accounting and financial management. A systemic approach is adopted to analyze settlement account accounting as a critical and integral component of an innovation-driven economy, following the conceptual foundations outlined by Kaplan and Atkinson (2015). This approach enables the study to capture both the structural and functional dimensions of accounting practices in the context of digital and technological transformation.

The research employs a combination of qualitative and quantitative methods to ensure a comprehensive analysis:

Analysis and synthesis, to examine existing theories, frameworks, and empirical findings, and to integrate them into a coherent conceptual model.

Comparative analysis of traditional versus digital accounting systems, aimed at identifying the advantages, limitations, and efficiency gains associated with digitalization.

Classification and systematization of accounting challenges and potential areas for improvement, facilitating structured problem-solving and strategic recommendations.

Scientific abstraction and logical generalization, to extract core principles and formulate models applicable across diverse organizational contexts. Empirical data for the study are drawn from authoritative sources, including reports of international organizations such as the OECD, the World Bank, and Basel Committee, as well as Scopus-indexed academic publications. The use of these sources ensures both the reliability and academic rigor of the findings, allowing for evidence-based conclusions that are relevant to contemporary accounting practice and policy-making. This methodology provides a robust framework for investigating the effects of digital technologies on accounting efficiency and supports the development of practical, empirically validated models for enhancing settlement account management in innovation-driven economies.

Model for Evaluating Accounting Efficiency

To assess the efficiency of accounting for settlement account operations, an integrated functional model is proposed:

$$U_{sa}=f(PF,DO,AU,RT,IT) \quad (1)$$

where U_{sa} denotes overall accounting efficiency; PF payment flows; DO share of digital operations; AU automation level; RT real-time recording; and IT information technology intensity.

The linear econometric specification is expressed as:

$$USA=\alpha+\beta_1PF+\beta_2DO+\beta_3AU+\beta_4RT+\beta_5IT+\varepsilon \quad (2)$$

An **Innovative Accounting Index (IAI)** is also proposed to classify accounting system development levels.

Results and Discussion

The study's findings indicate that the integration of digital technologies and automation markedly enhances accounting efficiency. Enterprises adopting ERP systems, electronic banking, and real-time data processing demonstrate improved financial transparency, reduced operational errors, and accelerated decision-making. These results underscore the transformative potential of digital tools in streamlining accounting workflows and strengthening the reliability and timeliness of financial reporting. Nevertheless, several challenges remain. Insufficient digital competencies among accounting personnel, cybersecurity vulnerabilities, regulatory constraints, and high implementation costs—particularly for SMEs—pose significant barriers to full digital adoption (Esgerova et al., 2025). Addressing these obstacles requires targeted human resource development, secure technological infrastructures, and supportive regulatory frameworks to ensure sustainable digital transformation in accounting practices. In conclusion, while digitalization substantially improves efficiency and transparency, its successful implementation depends on a balanced approach that integrates technology, human capital, and regulatory compliance. These insights provide both theoretical guidance and practical recommendations for enterprises navigating the evolving digital accounting landscape.

Conclusion

This study confirms that the enhancement of settlement account accounting is a strategic determinant for strengthening enterprise financial stability and competitiveness within an innovation-driven economy. The findings demonstrate that the adoption of digital technologies, automated accounting systems, and electronic banking tools significantly improves the accuracy, reliability, and timeliness of financial information, thereby facilitating evidence-based managerial decision-making (Vasarhelyi et al., 2015; OECD, 2015). The conceptual framework and quantitative models developed in this research offer practical tools for assessing accounting efficiency and guiding the optimization of accounting processes in digitally enabled environments. These models provide both theoretical insights and actionable strategies for enterprises seeking to leverage digital technologies to enhance transparency, reduce errors, and improve overall financial performance (Ibrahimov et al., 2023). Looking ahead, future research could focus on the empirical application and validation of these models across different industries and countries. Such studies would further refine the frameworks, assess their adaptability to diverse organizational and regulatory contexts, and contribute to a deeper understanding of digital accounting practices in global innovation-driven economies (Abbasov, 2026). In sum, the study underscores the pivotal role of digitalization in modern accounting, highlighting that the integration of technology, skilled human capital, and supportive institutional frameworks is essential for achieving sustainable improvements in financial management and enterprise competitiveness.

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