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Improving Digital Accounting Effectiveness in Vietnam's Digital Transformation: Theoretical Analysis and Solutions

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Abstract
Digital transformation is reshaping accounting practices worldwide, requiring a shift from traditional manual methods to digital accounting systems. This paper provides a theoretical framework for digital accounting and examines its role in the broader digital transformation agenda, with a focus on Vietnam. The current status of digital accounting adoption in Vietnam is analyzed, highlighting progress and persistent challenges such as limited technology integration, skill gaps, and regulatory hurdles. Drawing on literature and Vietnamese policy documents, the study proposes strategic solutions to enhance the efficiency and effectiveness of digital accounting. Key recommendations include strengthening top management support and digital awareness, upgrading legal frameworks (e.g., e-transactions laws and accounting standards) to accommodate digital records, investing in robust IT infrastructure and cybersecurity, and developing human resources through education and training in digital skills. The paper also emphasizes the Vietnamese government's initiatives such as mandatory e-invoicing and national digital transformation programs and recommends further support for small and medium-sized enterprises (SMEs) in their digital accounting journey. The findings contribute to a deeper theoretical understanding of digital accounting in an emerging economy and offer practical insights for policymakers and practitioners to leverage accounting digitization for Vietnam's sustainable development in the digital era.

Keywords: Digital Accounting, Digital Transformation, Vietnam, Accounting Information Systems, E-Invoicing, SME Digitalization

Introduction

In the era of the Fourth Industrial Revolution, digital transformation has become a strategic imperative across industries and countries. It involves the comprehensive integration of digital technologies into business processes and models to improve efficiency, transparency, and value creation. The accounting sector, being the backbone of financial information in organizations, is not insulated from this trend. Traditional accounting – characterized by manual data entry, paper documents, and periodic reporting is gradually giving way to digital accounting, which leverages technologies such as cloud computing, big data analytics, blockchain, the Internet of Things (IoT), and artificial intelligence (AI) to automate and enhance accounting processes. Digital accounting enables real-time data processing, greater accuracy, and improved accessibility of financial information, thereby supporting faster and more informed decision-making. It also creates new opportunities for analysis and innovation in financial services, while posing challenges in terms of change management and skills requirements.

Vietnam provides a particularly interesting context to examine digital accounting in the midst of digital transformation. The Vietnamese government has declared digital transformation a national priority for sustainable growth and international integration. The Prime Minister's Decision 749/QĐ-TTg (2020), approving the National Digital Transformation Program, sets ambitious targets such as having the digital economy contribute about 20% of GDP by 2025 and 30% by 2030. Recent high-level directives like the Politburo's Resolution 57 (2024) further reinforce digital transformation as a breakthrough strategy, encouraging innovation and technology adoption across all sectors. In the accounting and finance domain, the Ministry of Finance has outlined a Strategy for Accounting and Auditing to 2030, which explicitly calls for accelerating digital transformation in accounting services and regulatory frameworks. This includes building comprehensive financial databases and enhancing regulatory oversight through digital means. Such top-down support indicates a favorable policy environment for digital accounting advancement in Vietnam.

Despite this strong policy push and the clear benefits of digital accounting, the adoption in Vietnam remains uneven and faces numerous challenges. Many Vietnamese enterprises, especially small and medium-sized enterprises (SMEs), are still in early stages of accounting digitization. While basic accounting software and electronic tax filing are common, more advanced systems (e.g., enterprise resource planning (ERP), cloud-based accounting, blockchain applications) are not widely implemented. Surveys indicate that a majority of accountants in Vietnam are familiar with fundamental software tools, yet lack awareness or expertise in newer digital technologies for accounting. Challenges such as limited IT infrastructure, budget constraints, concerns about data security, and shortage of skilled human resources impede the progress of digital accounting adoption. Moreover, certain legal and regulatory frameworks – including accounting standards and guidance – are still catching up with digital practices, creating some uncertainty for businesses aiming to innovate.

This paper addresses the above gap by conducting a theoretical analysis of how to improve the effectiveness of digital accounting in Vietnam's digital transformation context. We begin by establishing a theoretical framework for digital accounting and reviewing relevant literature (both global and local) on its benefits and implementation issues. Next, we analyze the current status of digital accounting in Vietnam and identify key challenges that need to be addressed. In the discussion, we propose a set of strategic solutions aimed at enhancing digital accounting effectiveness – from policy measures and technological investments to training and change management initiatives. Throughout the analysis, Vietnamese government policies and regulations (such as the E-Transactions Law, e-invoicing mandates, and the Accounting Law) are referenced to ground the recommendations in the country's regulatory context. By blending international best practices with Vietnam's specific conditions, the study provides insights for scholars and practitioners interested in accounting modernization and informs policymakers seeking to foster digital transformation in the finance sector.

The remainder of this article is organized as follows: Section II presents the literature review and theoretical framework of digital accounting in the context of digital transformation. Section III outlines the research methodology. Section IV examines the current status of digital accounting adoption in Vietnam and analyzes the challenges encountered. Section V discusses proposed solutions and strategies to improve the effectiveness of digital accounting. Finally, Section VI concludes the paper and suggests directions for future research.

Literature Review: Digital Accounting and Digital Transformation

A. Digital Accounting Concepts and Role in Transformation: Digital accounting refers to the application of modern information and communication technologies to the accounting function, transforming how financial data are collected, processed, reported, and audited. It is essentially a shift from traditional paper-based or standalone computerized accounting to integrated, often cloud-based systems that enable automation and real-time financial information flow. Cao & Quynh (2024) [11] describe digital accounting as the process of "changing the old, traditional model of processing and providing economic and financial information to a digital technology model" by leveraging tools of the Fourth Industrial Revolution such as IoT, Big Data, blockchain, and cloud computing. In this model, tasks like data entry, posting to ledgers, reconciliations, and even aspects of analysis can be automated or streamlined through software. The outcome is not merely faster processing but also a fundamental change in the culture and processes of accounting, including how accountants interact with data and with other stakeholders.

In the broader context of digital transformation, digital accounting plays a critical role as part of an organization's transition to digital operations. Digital transformation has been characterized as a strategic realignment of business models through comprehensive adoption of digital tools to restructure processes and services. In accounting, this translates to moving towards real-time reporting, paperless documentation, and data-driven decision support. Studies have highlighted that digital transformation in accounting can improve the quality of accounting information systems by increasing the speed of information processing, reducing operational costs, and enhancing accuracy and reliability of financial data. It also enables greater transparency and an audit trail of transactions, which mitigates information asymmetry between management and stakeholders. For example, the adoption of technologies like blockchain can ensure transactional integrity, and AI-powered analytics can detect anomalies, thus improving oversight and trust in financial reports. Global professional bodies (e.g., ACCA and IMA) have noted that digital tools are reshaping the accounting profession's reality and that embracing these tools is vital for maintaining relevance in a data-driven environment.

However, literature also cautions that the impact of digital transformation on accounting can be complex, especially in emerging markets. In early stages, organizations might experience growing pains – such as integration issues or temporary declines in information quality if digital systems are implemented without adequate preparation. A study on public-sector units in developing countries found that an immature deployment of digital technologies could negatively affect accounting system quality initially, likely due to users' lack of familiarity and insufficient system optimization. This underscores that human factors remain central: as Kruskopf *et al*. (2020) [3] argued, the success of digital accounting depends not only on the technology itself but also on organizational culture, employee skills, and change management. Thus, a theoretical framework for analyzing digital accounting effectiveness should include both technological components (software, IT infrastructure, security) and human/organizational components (leadership, competencies, process redesign, and regulatory environment).

B. Components of Digital Accounting Systems: Modern digital accounting systems typically encompass a range of technologies and practices. Key components include:

- **Accounting Software and ERP Systems:** At the core are advanced accounting software or Enterprise Resource Planning systems that integrate various accounting functions (general ledger, accounts payable/receivable, inventory, payroll, etc.) into one platform. These systems often allow automation of routine entries and consolidation of financial data across an organization. In Vietnam, for instance, popular local accounting software (e.g., MISA) and international ERP solutions provide the backbone for many firms' digital accounting efforts.

- **Cloud Computing:** Cloud-based accounting solutions enable remote access to financial data and collaborative work in real time. The cloud model reduces the need for on-premise servers and provides scalability for growing businesses. Surveys show a growing belief among accountants that cloud technology can ease their workload; a majority in some studies agreed that cloud-based solutions make accounting tasks more efficient. In Vietnam, cloud adoption is still nascent – only about 10% of companies have implemented cloud accounting or ERP – but it is expected to rise as awareness increases.
- **Digital Reporting and XBRL:** Digital accounting also involves the use of standardized digital reporting languages like XBRL (eXtensible Business Reporting Language) for financial statements, enabling easier data exchange and analysis by regulators and investors. Transitioning to such standards often accompanies the adoption of International Financial Reporting Standards (IFRS). Vietnam is in the process of converging its accounting standards to IFRS; the Ministry of Finance has approved a roadmap to allow voluntary IFRS adoption by 2025 and move toward compulsory application thereafter. This shift to IFRS, supported by digital tools, is expected to improve transparency and comparability of financial information.
- **E-invoicing and Electronic Documents:** A prominent aspect of accounting digitization is the move to electronic invoices and records. E-invoicing systems replace paper invoices with digital ones that can be transmitted to tax authorities and stored electronically. Countries worldwide have adopted e-invoice mandates to improve tax compliance and reduce fraud. Vietnam has been a regional leader in this area – since July 2022, electronic invoicing is mandatory for all businesses in Vietnam, replacing traditional paper invoices. Under Decree 123/2020/ND-CP and its successor Decree 70/2025/ND-CP, all firms must issue invoices in electronic form and integrate with the tax authority's system, which greatly accelerates the shift to digital accounting practices. Digital invoices, along with digital receipts and documents, form an essential part of a fully digital accounting system by ensuring that source documents are electronic from the start.
- **Advanced Analytics and Automation:** Emerging technologies are enhancing accounting analytics and automation. Robotic Process Automation (RPA) can handle repetitive tasks like invoice processing or data reconciliation without human intervention. Artificial intelligence and machine learning algorithms are being tested for more complex tasks such as anomaly detection in transactions, predictive financial analysis, and even conversational interfaces (chatbots) for finance operations. For example, AI tools can help auditors sift through vast datasets for irregularities, and machine learning can improve expense classification in bookkeeping. These tools are at the frontier of digital accounting transformation, though adoption in developing countries is still limited. The expectation in theory is that by automating mundane tasks, digital accounting allows human accountants to focus on strategic analysis and decision support, thereby increasing the profession's value-add (a concept termed "augmented accounting").
- **Internal Control and Security Technologies:** With greater digitization comes the need for robust IT controls and cybersecurity measures in accounting systems. Digital accounting systems incorporate access controls, encryption, and audit logs to protect sensitive financial data. Blockchain has been proposed as a tool for enhancing security and trust, as it can create immutable records of transactions. In the Vietnamese context, companies express concern about data security and fraud risks when moving to digital platforms. Therefore, any effective digital accounting framework must integrate security solutions (e.g., secure networks, regular backups, compliance with the Cybersecurity Law) to mitigate these risks.

C. Prior Studies and Lessons for Vietnam: Prior research on accounting digitalization in emerging economies provides valuable lessons. Many studies emphasize the importance of organizational readiness including top management support, employee IT competency, and change management in successful digital transformation of accounting. Nguyen *et al*. (2024) [12] found that for Vietnamese SMEs, leadership awareness and commitment are among the strongest determinants of successful digitization of accounting processes. This aligns with international findings that having a clear vision and strategy from executives is critical; without it, even well-designed digital systems may not be utilized effectively.

Another common finding is the disparity between large firms and SMEs. Larger firms usually have more resources to invest in sophisticated accounting information systems and tend to be early adopters of technologies like ERP. SMEs, on the other hand, often face resource constraints and may adopt digital tools more slowly. In Vietnam, SMEs account for approximately 97% of all businesses, making their digital accounting progress crucial for national success. Yet, many SMEs have only implemented basic digital accounting (like using spreadsheets or simple software) and have not built integrated digital systems. World Bank researchers Bruhn *et al*. (2025) [10] documented challenges in a program that offered Vietnamese SMEs free access to a cloud ERP platform: initial uptake was high with training, but sustained use dropped to around 35% after 18 months due to factors like time constraints, lack of a dedicated "digital champion" in the firm, and difficulties in changing legacy practices. This case underscores that providing technology alone is not enough – continuous support and demonstrating clear benefits are necessary to keep smaller firms engaged in digital transformation.

Human capital is repeatedly highlighted in literature as both a challenge and a solution. The accounting workforce needs new skills (e.g. data analysis, IT control, system management) to effectively operate in a digital environment. A gap in digital skills can hinder the exploitation of available technology, leading to under-utilization of systems. Conversely, targeted training and inclusion of digital accounting topics in professional education can significantly improve readiness. Developed countries' experience suggests that universities and professional bodies must update their curricula to cover topics like accounting information systems, data analytics, and digital audit techniques. In Vietnam, some progress has been made (for instance, universities have started to introduce ERP practice in accounting courses), but more systematic inclusion of "digital accounting" as a subject has been recommended.

Lastly, the regulatory environment is a vital part of the theoretical framework. For digital accounting to flourish, laws and standards must accommodate electronic records, digital signatures, and new technology uses. Vietnam's government has been actively updating its legal framework: the Law on Electronic Transactions 2023 (replacing the 2005 law) provides a clearer legal basis for e-documents and digital signatures in all fields. The 2015 Accounting Law already permits accounting vouchers and books in electronic form, but further guidance is being developed to address issues like cloud storage and cross-border data (e.g., ensuring compliance with the Cybersecurity Law and data localization requirements for cloud accounting services). The Accounting-Auditing Strategy to 2030 also instructs regulators to revise accounting and auditing standards in line with digital transformation, and to eventually mandate that accounting units use accounting software and organize information systems that meet digital standards. These policy evolutions form an important part of the theoretical backdrop, as they influence the incentives and constraints for firms adopting digital accounting.

In summary, the literature suggests that digital accounting effectiveness arises from a synergy of technology, people, and policy. A theoretical analysis must therefore consider technical readiness (infrastructure and tools), human factors (skills, management, culture), and the institutional context (regulations, standards, market conditions). In the next sections, we will examine how these factors manifest in Vietnam by analyzing the current state of digital accounting and the challenges that need to be addressed.

Methodology

This study is primarily a theoretical and qualitative analysis based on a comprehensive review of existing literature, industry reports, and Vietnamese policy documents related to digital accounting and digital transformation. Rather than collecting primary data through surveys or interviews, we synthesized information from secondary sources to draw insights. The research process involved several steps:

- **Literature Search and Selection:** We conducted targeted searches for scholarly articles, white papers, and reports published from approximately 2018 to 2025 that focus on accounting digitization and digital transformation, with an emphasis on Vietnam. Both English and Vietnamese sources were considered to capture local context (e.g., studies by Vietnamese academics and government publications). Key search terms included "digital accounting Vietnam," "accounting digital transformation," "SME accounting technology Vietnam," and "Vietnam accounting law digital." Sources were selected for review based on relevance and credibility, prioritizing peer-reviewed journals, conference papers, reports by international organizations (World Bank, etc.), and official Vietnamese government releases.
- **Review of Policy and Regulatory Documents:** To incorporate the regulatory perspective, we examined Vietnamese laws, decrees, and strategies that relate to digital transformation and accounting. Important documents included the Vietnam Accounting Law (2015) and its amendments, the national digital transformation program (Decision 749/QĐ-TTg, 2020), the Accounting and Auditing Strategy to 2030 (Decision 633/QĐ-TTg, 2022), Ministry of Finance decrees on e-invoicing (e.g., Decree 123/2020/ND-CP and Decree 70/2025/ND-CP), and the new Law on Electronic Transactions (2023). These helped identify the government's objectives, requirements, and support mechanisms for digital accounting.
- **Thematic Synthesis:** We coded the collected information into key themes corresponding to our research objectives: (1) theoretical framework of digital accounting, (2) current status of digital accounting in Vietnam, (3) challenges in adoption, and (4) proposed solutions. For example, any data on adoption rates or case studies were grouped under "current status," while statements about difficulties (like skill gaps or cost issues) were grouped as "challenges." Policy measures and recommendations from literature were compiled under "solutions." This thematic approach allowed us to compare findings from different sources and ensure a holistic analysis.
- **Cross-Verification:** Given that data on this topic can vary, we cross-verified important statistics and claims across multiple sources when possible. For instance, the percentage of businesses using certain technologies or the year a regulation took effect were confirmed via more than one source (e.g., both a journal article and an official news release). This was done to enhance the reliability of the information presented.
- **Academic Writing and Citation:** We followed an academic style, adhering to IEEE citation format for referencing sources. Inline citations are provided to acknowledge the sources of specific information or data points (using a bracketed format that links to the reference), and a detailed References section is included at the end. By doing so, we ensure transparency and allow readers to trace the origin of key inputs into our analysis.

The methodology is qualitative and exploratory, appropriate for developing a theoretical understanding in an area where quantitative data may be limited. While it does not involve hypothesis testing through empirical data collection, it provides a synthesized view of the state of digital accounting in Vietnam. The approach also recognizes that Vietnam's scenario must be understood in context – by blending global insights with local studies and policy directions. The next section will present the findings on the current state and challenges, as derived from this research process.

Current Status of Digital Accounting in Vietnam

Vietnam has made notable strides in adopting digital accounting practices in recent years, propelled by both market forces and government-led digital transformation initiatives. However, the level of adoption varies significantly across different types of enterprises and accounting activities. Here we outline the current landscape, including commonly used technologies, extent of implementation in various sectors, and illustrative examples of progress.

Adoption of Basic Accounting Software: The majority of Vietnamese companies, especially SMEs, have transitioned from purely manual bookkeeping to using accounting software for their day-to-day accounting tasks. A study by Nguyen Phuoc Bao An *et al*. (2021) reported that accountants in Vietnam rated their familiarity with basic accounting software as 4 out of 5 on a scale of knowledge. Widely used local software such as MISA (a Vietnamese accounting software provider) is prevalent among SMEs for bookkeeping, tax calculations, and financial statement preparation. These software packages provide a user-friendly interface in Vietnamese and are compliant with the Vietnamese Accounting Standards (VAS), making them accessible for domestic firms. The use of software has improved efficiency and accuracy compared to manual methods and is now considered a standard practice in most medium and large enterprises. According to industry surveys, about 58% of Vietnamese companies use accounting software proficiently in their operations. This indicates that foundational digital accounting tools have penetrated more than half of businesses, aligning with the country's push for business digitalization.

Electronic Invoicing and Tax Filing: One of the most significant developments in Vietnam's accounting digitization is the full-scale rollout of electronic invoicing (e-invoices). As of July 1, 2022, Vietnam mandated that all organizations and individuals that issue invoices must use electronic invoices instead of traditional paper invoices. This was implemented via Decree 123/2020/ND-CP, and by mid-2022 Vietnam became one of the pioneering countries in Asia-Pacific to achieve near-universal e-invoice adoption. Businesses now use software (often provided by certified vendors or the tax authority's platform) to generate invoices in a standardized XML format with digital signatures, and these are automatically transmitted to the tax database in real-time. The transition has been largely successful: by the end of 2022, millions of e-invoices were being issued daily nationwide. In parallel, electronic tax filing and payment systems have been in place for several years, with most enterprises submitting tax declarations online via the General Department of Taxation's portal. The combination of e-invoicing and online tax filing means that much of the transaction data and compliance reporting in Vietnam is now digital. The government reports that this has improved tax compliance, reduced processing times, and cut costs for both businesses and tax authorities. For accounting departments, it has eliminated the need to store physical invoice books and allowed easier retrieval of sales/purchase data.

Digital Signatures and Electronic Records: Hand-in-hand with e-invoicing, the use of digital signatures in Vietnam has become commonplace for approving financial documents and submissions. The Law on Electronic Transactions and guiding decrees have given legal validity to digital signatures, and businesses obtain digital certificates from authorized service providers. As of 2025, over 21.8 million digital certificates have been issued in Vietnam for various purposes, reflecting a broad adoption of e-signatures in both government and business transactions. Companies apply these to sign payment orders, contracts, and accounting reports, enabling fully paperless workflows. Furthermore, many enterprises have begun maintaining electronic accounting records and vouchers. Under the current Accounting Law, electronic copies of accounting documents are acceptable if they meet integrity and security criteria. Leading firms now use document management systems to scan and archive receipts, invoices, and vouchers, reducing physical storage and improving searchability. State agencies too are moving towards all-electronic document handling (with a target of 90-100% e-documents in government offices by 2030 according to the national digital transformation program). These trends indicate an ecosystem gradually maturing to support end-to-end digital accounting records.

ERP and Integrated Systems - Slow but Emerging: While basic software is common, fully integrated ERP systems are less so, especially among SMEs. Only about 10.5% of companies (as per one study) have implemented enterprise resource planning or cloud-based accounting solutions. These tend to be larger companies, multinationals, or those in sectors like finance and banking which require robust integration. Banks and large corporations in Vietnam have invested in modern core banking and ERP systems that integrate accounting with other operations (inventory, sales, etc.), providing real-time consolidated financial information. In SMEs, adoption of ERP is hindered by cost and complexity. However, the awareness is growing: cloud ERP solutions (e.g., SaaS models) are being marketed to mid-size firms as affordable and scalable options. The Digital SME program launched in 2021 (a collaborative initiative with a local tech firm) offered free trial access to a cloud ERP platform for hundreds of SMEs. The initial response was strong, demonstrating latent demand, though sustained usage required additional support as noted earlier. Going forward, as local cloud infrastructure becomes cheaper and trust in SaaS grows, more Vietnamese businesses are expected to adopt integrated accounting systems.

Sectoral Differences: The extent of digital accounting also varies by sector. Banks and financial institutions are ahead of the curve – driven by both regulatory oversight and competition, they have invested in digitizing not only internal accounting but also customer-facing processes. For example, many banks use AI and big data for credit risk assessment (which feeds into accounting provisions) and employ RPA for routine reconciliations. The State Bank of Vietnam encourages tech adoption, and commercial banks have digital transformation strategies that include finance automation. The manufacturing sector has some large export-oriented firms using advanced cost accounting modules of ERPs, but many domestic manufacturers still use basic systems. Retail and e-commerce companies naturally lean towards digital systems to handle high volume transactions and online payments, often integrating their point-of-sale systems with accounting software in real time. Public sector accounting is also undergoing changes: Vietnam's Treasury and budgeting systems are being modernized, and a project to implement accrual-based accounting in the public sector involves new software deployments. Nevertheless, government accounting units report challenges in fully digitizing, partly due to legacy procedures and the need for training (this will be discussed under challenges).

Professional Services and Audit Firms: Accounting and auditing service providers in Vietnam have themselves embraced digital tools to enhance service quality. The Big Four and larger audit firms in Ho Chi Minh City and Hanoi are utilizing computer-assisted audit techniques, data analytics, and collaborating through digital platforms with clients. Many firms during the COVID-19 pandemic shifted to remote audits using cloud document sharing and video conferencing, which accelerated the digital familiarity of the profession. The Vietnam Association of Certified Public Accountants (VACPA) has been holding seminars on digital transformation in auditing, and audit regulators are considering how to incorporate analytics into audit oversight. Similarly, tax consulting firms have developed software tools for things like digital invoice reconciliation and tax risk assessments. These changes in the professional sphere create a supportive environment for companies to further adopt digital accounting, as their auditors and advisors are increasingly tech-savvy.

Education and Training Status: On the capacity side, there have been movements to improve the digital competencies of accountants. Universities such as the Academy of Finance, National Economics University, and Foreign Trade University have introduced courses on Accounting Information Systems, ERP, and data analysis for accounting students. Professional training programs (including those by VACPA and CPA Australia's Vietnam branch) now include modules on emerging technologies in accounting. While these efforts are still ramping up, they represent a response to the demand for new skill sets. The current workforce, especially older accounting staff, often lacks formal training in IT beyond basic office software. Companies that adopt new accounting software typically have to invest in training their staff, either in-house or through vendors. This is a work in progress – some companies have highly capable teams, others struggle and therefore use only basic features of the systems they purchase.

In summary, the status quo of digital accounting in Vietnam is that foundational elements (accounting software, e-filing, e-invoices) are in widespread use and yielding benefits like increased efficiency and compliance. More advanced integration (ERP, cloud systems, advanced analytics) is present but not yet pervasive, mainly adopted by larger or forward-thinking organizations. The government's digital agenda has clearly influenced adoption, most visibly through the e-invoice mandate and the push for online public services. Vietnamese firms are at various points on the digital maturity spectrum, with many still in the early phase of digitization (digitizing records and using standalone software) and a growing minority moving towards fully digital, intelligent accounting systems. This sets the stage for understanding the challenges that slow down or complicate further adoption, which we discuss next.

Challenges in Adopting Digital Accounting in Vietnam

Despite the positive developments, Vietnamese enterprises face a range of challenges in implementing digital accounting effectively. These challenges are multifaceted – encompassing technological, human, organizational, and institutional factors. Identifying these pain points is crucial to devise appropriate solutions. Below, we outline the key challenges:

1. Limited Integration and Digital Infrastructure: Many companies, especially SMEs, have only *partially* digitized their accounting processes. As noted, it is common to use basic software for bookkeeping, but that often operates in isolation. Integration between different systems (sales, inventory, banking, etc.) and the accounting system is lacking in many cases. This results in continued manual data transfer between systems or departments, negating some benefits of digital accounting. A study focusing on enterprises in Hai Phong city observed that numerous businesses had "only stopped at digitizing basic accounting data without building an integrated digital accounting system". This indicates a gap between mere digitization (e.g., using Excel or software in silos) and true digital transformation (where systems are interconnected). One cause is the inadequacy of IT infrastructure: not all firms have reliable networks, servers, or updated hardware to run modern accounting platforms. While internet connectivity is generally good in urban areas, rural enterprises may still struggle with stable connections for cloud services. Moreover, many legacy systems in use are outdated and not compatible with newer tools. Upgrading infrastructure requires capital investment that some firms are hesitant or unable to commit without clear short-term returns.

2. Financial Constraints and Cost-Benefit Concerns: Adopting advanced digital accounting systems can be costly. Purchasing or subscribing to ERP software, implementing it, and training staff involve significant expenses. SMEs with limited budgets find it hard to justify these costs, especially if the perceived benefits are long-term or intangible. This leads to a *"wait-and-see"* approach where companies stick with older methods. The Hanoi SME Association's 2020 survey highlighted that while 90% of surveyed businesses acknowledged the importance of digital transformation, only about 40% were willing to invest in it, largely due to financial limitations and unclear ROI. Additionally, given the rapid pace of technology change, some managers fear that an expensive system might become obsolete or require continuous upgrades, adding to cost uncertainty. Smaller firms also have less bargaining power to get affordable solutions tailored to their needs – many high-end accounting systems are scaled for larger enterprises.

3. Human Resource Skills Gap: A critical challenge lies in the workforce's readiness for digital accounting. Traditional accounting education in Vietnam has emphasized principles, manual accounting, and perhaps basic accounting software, but not the array of digital skills now needed (such as proficiency in ERP systems, data analytics, or IT control). Consequently, the current pool of accounting staff often lacks IT expertise. The Hai Phong study noted that the "digital capacity of the accounting team is still limited" in many enterprises. Senior accountants and managers who grew up in the era of paper accounting might be resistant to change or simply not comfortable with new software beyond rudimentary functions. Furthermore, specialized roles like IT-auditors or system accountants are relatively new and scarce. Companies often have to rely on external consultants to implement systems, and if they do not concurrently upskill their employees, the usage of those systems remains superficial. The **brain drain** of tech-savvy professionals to more lucrative tech industry jobs can also leave the accounting sector with a shortage of digital talent. In summary, the human factor is a bottleneck: without sufficient training and change management, employees may underutilize or even resist new accounting technologies.

4. Change Management and Organizational Culture: Beyond skills, there is the question of mindset and cultural readiness. Implementing digital accounting requires changes in workflows, responsibilities, and sometimes organizational structure. For example, automating certain tasks can raise concerns among staff about job security, leading to resistance. Some managers might be hesitant to push for automation fearing internal pushback or disruption of established routines. In Vietnamese corporate culture, as in many places, hierarchical decision-making means if top leadership is not fully convinced about digital transformation, initiatives can stall at lower levels. It was found that in SMEs, the owner's or CEO's awareness strongly dictates the firm's adoption of new accounting tech. If leadership lacks digital vision or prioritizes other investments, accounting modernization will be slow. Additionally, smaller businesses often do not have a dedicated IT department or CIO, placing the change management burden on accounting managers who may not have experience in leading technology projects.

5. Regulatory and Legal Uncertainties: While Vietnam is updating its laws to support digital practices, there are still areas of uncertainty that pose challenges. One issue is the lack of specific guidelines or standards for digital accounting systems. For instance, questions arise such as: What formats are acceptable for long-term electronic storage of accounting records? How to ensure that e-documents are admissible and trustworthy for audit or legal disputes? The Accounting Law (2015) and subsequent circulars permit electronic vouchers and books, but the guidance can be open to interpretation. Many companies err on the side of caution, continuing to maintain parallel hard copies or printouts "just in case," which reduces the efficiency gains of going digital. Another regulatory challenge is data security and privacy compliance. Vietnam's Cybersecurity Law (2018) and the follow-up decrees (such as Decree 53/2022) require certain data (including potentially financial data) to be stored on local servers or accessible to authorities. Companies using international cloud services for accounting might face uncertainty about compliance with data localization rules. Moreover, the legal framework for emerging technologies like cloud accounting, blockchain records, or AI in finance is still nascent. The literature points out that laws and regulations sometimes lag behind practice, which can create hesitation for firms adopting new digital methods. There is also the impending transition to IFRS – without strong guidance, some companies fear their systems may not capture all data needed for IFRS reporting or that they might have to run dual systems (VAS and IFRS) in transition, complicating their digital accounting implementation.

6. Cybersecurity and Data Protection Concerns: With the move to digital accounting, businesses become acutely aware of cybersecurity risks. Financial data is highly sensitive a breach, data loss, or fraud incident can be devastating. Many SMEs in Vietnam have limited cybersecurity measures, making them wary of fully online systems. There have been cases of ransomware or viruses affecting company databases, which heighten fear of digitizing everything. Additionally, not all cloud or software providers are seen as equally trustworthy; firms worry about service outages or a provider going offline. The challenge is balancing these risks with the rewards of digital accounting. Another aspect is the need for regular backups and disaster recovery planning – tasks that not all enterprises perform diligently, thus exposing them to risk. The new Personal Data Protection decree (13/2023/ND-CP) also puts an onus on companies to safeguard personal data, which would include employee and customer financial records. Ensuring compliance with such regulations requires additional effort and knowledge in data management within accounting systems.

7. SME-Specific Challenges: SMEs face some unique hurdles beyond what's mentioned. They often lack access to tailored solutions enterprise-grade software might be too complex or expensive, while consumer-grade solutions may not scale or meet accounting standards. There is a noted lack of awareness among some SME owners about what digital accounting solutions exist and how to implement them. Even when they recognize the importance (as the survey showed high awareness), converting that into action is difficult if there is no clear roadmap or trusted advisor. Furthermore, SMEs have limited ability to pause operations to implement new systems; they are concerned that the transition period (data migration, training, etc.) could disrupt their business. The Government has encouraged SMEs to digitize and even offered some programs, but reaching all SMEs and customizing support is challenging given their sheer number (over 800,000 SMEs nationwide).

8. Inequality in Digital Transformation Readiness: There's a regional and sectoral divide in Vietnam. Companies in major cities like Hanoi, Ho Chi Minh City, Da Nang are far more exposed to digital transformation resources be it consultants, IT providers, or simply peer learning opportunities – compared to those in smaller provinces. Thus, an SME in a rural province might find it hard to get the right support to implement a digital accounting system or hire skilled staff. Additionally, some sectors with lower profit margins or that are more traditional (say, small family businesses in trading or agriculture) might see digital accounting as a low priority relative to immediate business survival issues. This disparity means certain segments of the economy lag in accounting modernization, which could have long-term implications for their competitiveness and for the comprehensiveness of national digital transformation.

9. Change in Standards and Process Complexity: Implementing digital accounting may require re-engineering business processes. For example, to maximize an ERP, a firm might need to standardize its processes across departments, which can be complex if those processes were informal or varied. Some companies struggle with the discipline required for digital systems – such as consistently inputting data in structured formats, closing books on a shorter schedule, or adhering to new internal controls that the system enforces. The challenge is that digital systems often surface process inefficiencies or inconsistencies that were hidden in a manual system; addressing these can be daunting. Additionally, with IFRS on the horizon, companies will need to capture more granular data (like fair values, detailed revenue breakdowns) their current systems may not be configured for that, requiring further changes.

10. External Challenges – Vendor and Market Maturity: The ecosystem of technology vendors and consultants in Vietnam, while growing, is still developing. Not all vendors have the capacity to provide high-quality support, especially to many SMEs concurrently. Some companies have had negative experiences with poorly implemented software due to inexperienced vendors, which then sours their outlook on digital solutions. Moreover, interoperability issues arise if a company uses multiple software from different providers that do not seamlessly connect – a scenario that could be improved with industry standards or more mature market solutions.

In summary, Vietnam's journey toward comprehensive digital accounting is hindered by a confluence of challenges:

from internal issues like limited skills and budget to external factors like evolving regulations and market support. These challenges do not imply that progress will halt; rather, they point to areas where interventions are needed. The next section will propose solutions and strategies addressing these challenges, aiming to improve the effectiveness and uptake of digital accounting in Vietnam.

Strategic Solutions to Improve Digital Accounting Effectiveness

Addressing the above challenges requires a multi-pronged approach. The solutions must involve stakeholders at various levels government policymakers, professional bodies, business leaders, and educators to create an enabling environment and equip enterprises with the necessary tools and skills. Below we propose a set of strategic solutions and best practices to enhance the efficiency and effectiveness of digital accounting in Vietnam's digital transformation context:

1. Strengthen Leadership Commitment and Awareness: First and foremost, raising awareness and commitment among organizational leaders is critical. Company executives and owners need to fully understand what digital accounting entails and the long-term benefits it brings, such as improved decision quality, compliance, and competitiveness. Efforts should be made to educate and persuade leaders through seminars, success case studies, and perhaps government or industry recognition programs for digital pioneers. When top management is convinced, they are more likely to allocate resources and champion the change internally. For SMEs, leveraging the influence of business associations can help: for example, local trade groups or the Vietnam Chamber of Commerce and Industry (VCCI) could host workshops where SME leaders learn from peers who successfully implemented digital accounting. The goal is to change the mindset from seeing digital accounting as a cost to viewing it as an investment in business sustainability and growth. As research has indicated, top management support is a decisive factor for success, so any solution should start at the top.

2. Enhance Government Policy Support and Legal Framework: Government plays a pivotal role in providing a conducive framework. Vietnam has already taken significant steps (mandating e-invoices, etc.), but further refinement and support are needed:

- **Clear Guidance and Standards:** The Ministry of Finance (MOF) should continue to issue clear guidelines on digital accounting practices. This may include standards for electronic document management, requirements for accounting software (e.g., data backup, security features), and clarity on the legal validity of various digital records. By removing ambiguity, firms can confidently move to paperless processes. The ongoing review of the Accounting Law for amendments should incorporate provisions that facilitate digital transformation, as noted in the Accounting-Auditing Strategy through 2030.
- **Incentives for Adoption:** The government could introduce incentives such as tax credits or subsidies for companies (especially SMEs) that invest in approved digital accounting systems or training. Already, the draft Law on Digital Transformation proposes financial support and tax incentives for SMEs undergoing digitalization. Implementing such measures specifically for accounting systems – for instance, allowing accelerated depreciation of software investments or subsidizing cloud service fees for a period – can reduce the financial burden.
- **SME Support Programs:** Just as the government has programs for digital transformation in general, there could be targeted programs for accounting. This might involve public-private partnerships to provide low-cost or free basic digital accounting packages for micro and small enterprises, along with training. Similar to the Digital SME initiative by a private ERP provider, the government can collaborate with tech firms to scale such offerings. Given SMEs form 97% of businesses, even modest support multiplied across thousands of firms could have a large aggregate impact.
- **Strengthen Infrastructure and Connectivity:** Continue the national initiatives to improve ICT infrastructure, especially broadband access in remote areas. The targets to universalize broadband and 5G by 2030vietnamlawmagazine.vn will directly benefit digital accounting by enabling cloud usage and connectivity for all. Similarly, expanding the national data centers and encouraging local cloud services can reassure businesses about compliance with data localization and reduce latency issues.

3. Invest in Human Capital Development: Building a workforce capable of managing and innovating in digital accounting is a long-term solution:

- **Education Curriculum Revamp:** Academic institutions in Vietnam should incorporate digital accounting, accounting information systems, and data analytics into their curricula for accounting and finance students. As recommended by experts, introducing a dedicated "digital accounting" subject in university programs and vocational courses will prepare the next generation. Students should gain hands-on experience with popular accounting software and analytical tools as part of their training.
- **Continuous Professional Training:** For current accounting professionals, continuous professional education is key. Professional bodies like VACPA and the Vietnam Accounting Association should offer certifications or courses in digital accounting and IT audit. International certifications (like Certified Information Systems Auditor CISA, or ACCA's Data Analytics) could be promoted in Vietnam with localized support. Firms can encourage or mandate their accounting staff to attend these trainings, perhaps aided by government training subsidies.
- **Digital Talent in Accounting Departments:** Enterprises might consider creating hybrid roles or teams that bridge accounting and IT. For example, hiring an IT specialist within the finance department who can administer accounting systems and liaise with software vendors. For smaller businesses, outsourcing this function to accounting service providers or consultants is an option essentially "renting" digital expertise.
- **Change Management Training:** Beyond technical skills, change management capabilities need fostering. Leaders and project managers should be trained on how to implement new systems, communicate changes, and

manage resistance. This soft skill aspect can determine whether a digital accounting project truly succeeds.

4. Phased and Appropriate Technology Adoption: Companies should adopt technology in a phased, strategic manner suited to their capacity:

- **Needs Assessment and Roadmap:** Initially, businesses can conduct a needs assessment to identify which accounting processes most urgently need digitization and which technologies fit their size and industry. An incremental roadmap (e.g., first implement e-invoicing and digital archiving, next upgrade to an integrated accounting software, then consider an ERP or advanced analytics) can prevent overwhelming the organization.
- **Choosing Suitable Solutions:** It is important to select digital accounting solutions that are appropriate. For an SME, a cloud-based accounting package might suffice rather than a full ERP, thus saving cost and complexity. As suggested by Cao & Quynh (2024) [11], firms should proactively learn about and choose technologies that match their field and needs, and carefully select vendor partners for implementation. This could involve leveraging local software that adheres to domestic regulations or modular systems that allow gradual expansion.
- **Leverage Cloud and SaaS:** Cloud solutions can reduce upfront costs because of their subscription model and lower IT maintenance burden. Vietnamese SMEs increasingly recognize that cloud technology can ease accounting work. Using reputable cloud service providers (ensuring they meet Vietnam's security requirements) can help SMEs access sophisticated functionality without needing in-house infrastructure. Government could maintain a list of certified cloud accounting solutions that meet standards, guiding businesses to safe options.
- **Pilot Programs:** Before full rollout, companies might run pilot implementations of new systems in a single department or a subset of transactions. This allows learning and adjustment. For instance, a company could pilot an inventory-accounting integration for one product line, troubleshoot issues, then expand organization-wide. The knowledge from a pilot can be invaluable for scaling up.

5. Strengthen Cybersecurity and Trust in Digital Systems: To tackle security concerns, a combination of better practices and support structures is needed:

- **Guidelines for Data Security:** Issue industry guidelines on minimum cybersecurity practices for digital accounting (e.g., use of firewalls, encryption of financial data, multi-factor authentication for accounting system access, regular backups stored offsite, etc.). Industry associations can publish checklists or organize audits to help firms improve their defenses.
- **Cybersecurity Services for SMEs:** Encourage a market for affordable cybersecurity services tailored to SMEs (for example, managed security services, cloud backup solutions). Government could partially sponsor security audits for SMEs to identify vulnerabilities in their digital accounting setup. The new Personal Data Protection regulations add urgency to protecting data, so compliance and security go hand in hand.
- **Build Trust via Success Stories:** Publicize success stories where companies improved their business via digital accounting without security issues, to build trust. Also, if any company falls victim to data breaches, sharing lessons learned (anonymized if necessary) can highlight the importance of preventive measures without deterring others from digitizing.
- **Insurance and Contingency Planning:** Introduce the concept of cyber insurance to businesses as a safety net, and help them develop contingency plans. Knowing that there is a recovery plan (like data restoration from backups, insurance to cover downtime losses) can make companies more confident in going digital.

6. Tailored Solutions and Support for SMEs: Because SMEs are the backbone of Vietnam's economy and face the toughest hurdles, solutions must be tailored to them:

- **Simplified Digital Accounting Packages:** Promote or develop simplified accounting digital solutions that cover essential functions and comply with Vietnamese regulations, targeting micro and small enterprises (for example, a cloud app for bookkeeping, invoicing, tax filing all-in-one). Some startups in Vietnam are already offering such apps; these should be evaluated and possibly endorsed by authorities.
- **SME Digital Hubs:** Establish "digital transformation hubs" or consultation centers in major provinces where SMEs can get advice on what accounting software to use, how to implement it, and even receive on-site technical help. These could be run by a collaboration of local IT firms and departments of industry and trade.
- **Financial Support:** As mentioned, financial support in the form of subsidized software licenses or grants can be vital. Additionally, low-interest loans earmarked for technology adoption could help SMEs invest in necessary hardware (computers, scanners, etc., to support digital accounting).
- **Phased Compliance for SMEs:** Recognizing resource constraints, regulators could allow micro enterprises more time or leniency to comply with certain digital mandates, while strongly encouraging them and providing assistance. For example, if e-invoicing was challenging for the smallest businesses, authorities provided support and a phase-in period. A similar approach could be taken for any future mandates (like e-payroll systems or digital reporting) to not overwhelm small businesses.

7. Update and Align Standards (VAS, IFRS, etc.) with Digital Tools: As Vietnam transitions towards IFRS and updates its VAS (Vietnamese Accounting Standards) to VFRS (Vietnam Financial Reporting Standards), it's important to ensure this transition is facilitated by digital systems. The MOF and standard setters should:

- Provide software vendors with the upcoming standards changes so they can update their systems in time (e.g., IFRS requires more disclosures – software should be ready to capture those).
- Encourage development of XBRL taxonomies for VAS/VFRS and IFRS in Vietnamese context. Once taxonomies are available, regulators can push for digital financial statement filings, which would be a natural extension of digital accounting.

- Organize training for accountants on IFRS using digital tools, to show how technology can manage the complexity (for instance, using an accounting software's IFRS module or consolidation features).
- Pilot the new standards adoption with volunteer companies using digital platforms, demonstrating that even complex standards can be handled with the right systems.

8. Foster Professional Community and Knowledge Sharing: Creating networks for knowledge exchange will accelerate learning:

- **Professional Associations' Role:** Associations can serve as forums for sharing best practices in digital accounting. They could establish committees or interest groups on digital accounting transformation, which regularly publish articles or host discussions. As suggested by researchers, professional bodies connecting businesses to share practical experiences is valuable.
- **Mentorship and Peer Learning:** Large companies or multinational companies that have advanced systems could mentor smaller local firms (perhaps in their supply chain) on adopting digital accounting. For example, a big retailer could require its distributors to use e-invoices and help them set it up, creating a ripple effect.
- **Conferences and Awards:** Holding an annual "Digital Accounting and Finance Innovation" conference in Vietnam would bring together solution providers, businesses, and academics. Recognition (awards) for exemplary projects can motivate others. Such events also expose companies to the latest tools and vendors.

9. Gradual Culture Change and Change Management: Implementing any solution must be accompanied by managing change in the organization's culture. Some approaches include:

- **Communicate Vision and Benefits:** Within companies, leaders should clearly communicate why the shift to digital accounting is happening and how it benefits everyone – not just in terms of company profit, but also easing employees' work (e.g., less time on mundane tasks, more interesting analysis work).
- **Involve Users Early:** When selecting or designing systems, involve the end-users (accountants, clerks) in the process so they feel ownership. This also helps in customizing the system to actual user needs, increasing the chance of acceptance.
- **Pilot Champions:** Identify tech-savvy or enthusiastic staff to be "digital champions" who help their peers learn and troubleshoot the new systems. The World Bank case study noted firms that assigned a point person to champion the new platform had more success. This principle can be applied generally.
- **Incremental Wins:** Aim for quick wins early on – for example, after implementing an automation for a specific report, show how it reduced closing time by say 2 days, and celebrate that. Small successes build momentum and confidence in the new system.

10. Monitoring and Continuous Improvement: Finally, establishing mechanisms for continuous monitoring of digital accounting effectiveness and making improvements is important. Companies should track key performance indicators (KPIs) such as time to close books, error rates in reports, audit findings, etc., before and after digitization. This quantification can highlight improvements or flag issues to address. Regulators and industry bodies might also conduct periodic surveys or studies on the state of digital accounting adoption, to measure progress towards the 2030 goals and adjust strategies accordingly.

By implementing these solutions in a coordinated manner, Vietnam can accelerate the transition to digital accounting and ensure it delivers on its promise of greater efficiency and transparency. Notably, many recommendations above reinforce each other: for instance, improved training (human capital) makes technology adoption smoother; better legal clarity improves leadership confidence to invest; government incentives alleviate financial constraints. The experience of other countries suggests that when these pieces come together, the accounting profession can undergo a significant transformation, becoming more agile and insight-driven. In Vietnam's case, given the strong top-level political will for digital transformation, the recommended strategies align well with the national direction and can be operationalized through the collaborative effort of government agencies (like MOF, Ministry of Information and Communications), business associations, and educational institutions.

Conclusion

Vietnam stands at an important juncture in modernizing its accounting industry through digital transformation. This paper has provided a comprehensive analysis of theoretical and practical aspects of improving digital accounting effectiveness in Vietnam. We began by framing digital accounting as a key component of the broader digital transformation movement, highlighting its potential to revolutionize financial information management through technologies like cloud computing, AI, and blockchain. The theoretical framework underscored that technology alone is not a panacea – success in digital accounting also hinges on human factors, organizational practices, and supportive policies.

Our examination of the current status in Vietnam revealed a landscape of partial progress. On one hand, basic digital tools (accounting software, e-invoices, online tax filing) are widely used and have delivered tangible benefits such as faster processing and compliance improvements. On the other hand, advanced integration (ERP systems, real-time analytics) and comprehensive digital ecosystems are still in early adoption stages, especially among SMEs. We identified that Vietnamese companies are keenly aware of digital trends, but many are cautious in execution due to various challenges.

The challenges diagnosed include infrastructural and financial limitations, a significant digital skills gap among accounting professionals, cultural resistance to change, and certain regulatory ambiguities. Notably, SMEs – the majority of Vietnamese businesses – face disproportionate difficulties in terms of resources and expertise. While government policies like mandatory e-invoicing and the national digital transformation program have set strong momentum, the implementation on the ground encounters obstacles such as legacy mindset, training needs, and cybersecurity concerns.

In response, we proposed a set of strategic solutions. Key among them is the emphasis on human and organizational development: building leadership support, upgrading education and training for digital skills, and managing change effectively within firms. We also stressed enhancing the enabling environment through clearer regulations, incentives, and public programs to support especially the small players. Technologically, a phased and right-sized adoption approach was recommended – encouraging firms to start with attainable steps and gradually scale up their digital sophistication. Throughout, the importance of collaboration and knowledge sharing was highlighted: whether through professional associations disseminating best practices or government-private partnerships bringing affordable solutions to SMEs.

If these strategies are pursued, we anticipate a positive trajectory for digital accounting in Vietnam. Improved effectiveness would be evidenced by quicker financial reporting cycles, more accurate and insightful financial analysis, and stronger compliance (e.g., seamless audits with digital trails). In broader terms, achieving high levels of digital accounting adoption will contribute to Vietnam's goals of a digital economy and e-government, since financial data is the lifeblood of many digital services. It will also enhance Vietnam's integration into the global economy investors and partners gain confidence when companies operate with transparent, real-time financial systems, and alignment with international standards like IFRS becomes easier.

It should be acknowledged that this study is theoretical and based on current knowledge; as technology and policies evolve, new challenges and solutions will emerge. Future research could empirically investigate the impact of specific interventions (for instance, measuring performance of companies before and after adopting a certain technology, or case studies of successful SME digital transformation journeys in accounting). Additionally, studying the behavioral aspect how accountants' roles and identities are changing in the digital era in Vietnam could provide depth to the human side of transformation.

In conclusion, Vietnam's path to effective digital accounting is a work in progress, marked by both optimism from initial achievements and cautionary tales of hurdles. The direction, however, is clearly set: the convergence of government vision, market competition, and technological possibilities makes digital accounting not a question of "if" but "when and how." By proactively implementing the strategic solutions discussed, Vietnam can accelerate this transition, ensuring that its accounting infrastructure becomes not only digital in form but also truly effective in function – driving better corporate governance, financial transparency, and economic growth in the digital age.

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