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Digital transformation of accounting through blockchain technology: Evidence from Saudi Arabia

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A B S T R A C T

BC innovation is increasingly recognized in the accounting domain as a transformative technology with significant implications for accounting practices. This research aims to examine the potential digital transformations in Saudi businesses regarding the integration and adoption of BC technology into accounting practices. To analyze the associations between variables, the research design employs a quantitative method using PLS-SEM by Smart-PLS. Data were collected from a convenience sample of 208 respondents employing a standardized questionnaire. The results reveal that budgeting processes, transaction recording, and accounting adjustments, as well as BC's awareness, are positively influenced by the adoption of BC innovation. The findings, however, indicate that accounting operations should further support their innovative capabilities to remain aligned with rapid technological advancements. These results contribute to the existence of a stock of knowledge on the use of BC in accounting and auditing, also delivering empirical evidence of its benefits in an emerging nation The study has practical implications for accountants, businesses, policymakers, and researchers. The results can help businesses in efficiently gaining an advantage from BC developments to promote their accounting processes. Policymakers can adopt these outcomes to establish supporting regulations and frameworks that motivate the adoption and integration of BC innovation in the domain.

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1. Introduction

Global commerce has permanently shifted toward a digital-first economy, aligning with the objectives of Saudi Arabia's Vision 2030. The country is evidently fostering this growth through initiatives like the Digital Government Authority (Benhamlaoui, 2025). As e-commerce thrives, the focus must shift toward the technologies driving this change. Blockchain (BC) technology, in particular, is redefining accounting and auditing by introducing a new standard for transparency and security (Bonyuet, 2020; Darmawan et al., 2026). Equally significant, BC innovation has emerged as one of the most transformative and disruptive innovations reshaping accounting practices in the business landscape (Doabi et al., 2025). BC is a distributed ledger innovation that enables the secure, transparent, and immutable recording of transactions. Beyond accounting, it supports a wide range of applications, including smart contracts, digital currencies, supply chain management, and decentralized autonomous organizations (Han et al., 2023; Sheela et al., 2023). Hence, with BC technology, the discipline of accounting and auditing has been developed tremendously (Abdullah et al., 2024; Bellucci et al.,2022; Schmitz & Leoni, 2019; Dai & Vasarhelyi, 2017; Yermack, 2017; Akter et al., 2022).

In the context of Saudi Arabia, more than half of organizations intend to adopt BC innovation within the next three years, with substantial annual investments allocated to its development, demonstrating a significant organizational interest in BC development and rising investments in line with the nation's Vision 2030 digital transformation projects. For instance, recent statistics imply that more than 4,000 BC-related businesses were registered in the Kingdom in 2025, a 51% increase, which reflects significant organizational investment and the expanding use of BC technologies. (Saudi Gazette, 2025). According to Saudi Arabia's Vision 2030, the nation aims to rank among the world's leading digital governments by that year. In keeping

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with the central digital government strategy, the country has invested significantly in cutting-edge technologies like BC, 5G, artificial intelligence, and sophisticated data management systems (Abdullah & Almaqtari, 2024; Digital Government Authority, 2024). Besides promoting economic diversification and sustainable growth, these investments have solidified the society's standing as a regional leader in cutting-edge digital technologies, with an increase in plans for digital transformation recently (Abdullah & Almaqtari, 2024; Rehman & Alqahtani, 2026; Digital Government Authority, 2024). As a result, BC is increasingly viewed as a defining feature of modern accounting, presenting both significant opportunities and new challenges for the profession (Thanasas et al., 2026). Thus, there are significant efforts being made by Saudi Arabia's government in the direction of digital transformation.

The innovation has the potential to improve the reliability, timeliness, and accessibility of accounting information while reducing the risks associated with fraud, errors, and data manipulation (Dyball et al., 2021). Similarly, BC operates as a distributed ledger validated by network participants and continuously updated as new records are added. It captures a broad spectrum of transactions, agreements, and contracts through a peer-to-peer structure (Hsieh and Brennan, 2022). This decentralized framework ensures that once data is created and verified, it is cryptographically secured, making it extremely resistant to tampering. The sequential structure of BC blocks further prevents the alteration of historical records (Alkababji, 2025). Consequently, BC provides a trustworthy and transparent approach for recording transactions, which can be significantly advantageous across multiple sectors, including education (Abdullah et al., 2024). In the same vein, BC innovation enables triple-entry bookkeeping, ensures transaction immutability, automates routine tasks that do not require professional judgment, and facilitates the representation of cryptocurrencies in financial statements. It also supports value-chain management, social and environmental auditing, reporting practices, and business model innovation (Bellucci et al., 2022). BC's applications extend across various domains, including cryptocurrencies, stock financing, and corporate governance (Yu et al., 2019).

Despite its potential, BC innovation remains at its initial stage of development and faces several challenges, particularly in relation to data confidentiality and regulatory uncertainty. Prior studies recommend BC short-term use to encourage voluntary corporate disclosure, with long-term benefits including reduced disclosure errors, lower earnings management, and diminished information asymmetry (Bonsón & Bednárová, 2019). Full integration of BC into the accounting ecosystem, however, requires consensus and coordination among regulators, auditors, and other key stakeholders. Additionally, BC innovation contributes to the creation of a trustworthy digital infrastructure by embedding security, transparency, and accountability within its protocol driven architecture.

Practical implementation is already evident in Turkey's energy sector, where BC-based solutions are being developed for grid fault monitoring, cost measurement, billing systems, and the detection of technical losses and leakages (Alkababji ,2025). The conceptual origins of BC can be traced back to 2009, when Satoshi Nakamoto introduced Bitcoin. Although the term of BC was not clearly defined in his research, it articulated the decentralized and cryptographic mechanisms that later became the foundation of blockchain systems (Anis, 2023). Existing literature deduced that BC adoption might reshape accounting frameworks in divergent ways. Organizations must critically assess how BC affects accounting measurement, reporting, and assurance functions in order to capitalize on its potential benefits (Putritama et al., 2024).

For BC-generated data to be considered reliable and decision-useful, accounting infrastructures must be technologically aligned with distributed ledger systems (Yermack, 2017). In contrast, other studies claimed that BC implementation might expose emerging risks and complexities for the profession, particularly in regulatory oversight, ethical responsibility, governance structures, and professional education requirements (Han et al., 2023). From an accounting perspective, BC offers several advantages including, improved data integrity, enhanced transaction traceability, and greater operational efficiency in financial record management (Anis, 2023; Peprah et al., 2022; Mahtani, 2022; Ayedh et al., 2021; Supriadi et al., 2020). Nevertheless, empirical findings remain inconclusive, as prior research reports inconsistent evidence regarding the extent to which BC improves accounting quality (Giang & Tam, 2023).

Based on the above discussion, more investigation is required concerning BC's utilization and consequences for accounting implementations, particularly within developing countries, for instance, Saudi Arabia, which has received insufficient attention. Therefore, this study aims to examine Saudi accountants' perspectives regarding BC integration's impact in accounting operations. Additionally, it addresses the prospective utility of BC as an accounting framework and analyzes the obstacles associated with its integration into the accounting domain. This study provides numerous contributions. To start with, very scarce research exists examining accountants' knowledge and application of BC for accounting and auditing practices, particularly in emerging countries such as the Arab region. Thus, this study fills the gap by providing empirical evidence on the association between BC technology adoption's influence and accounting practices from the context of an emerging economy, Saudi Arabia. Specifically, it provides empirical evidence on both the perceived benefits and the extent to which BC solutions have been recently implemented in the accounting landscape. Secondly, it contributes to enriching the literature of digital technologies, as well as digital transformation in accounting, and is also a reference for future research. Finally, this research contributes to the existing stock of knowledge on the use of BC in accounting and auditing, also delivering empirical evidence of its benefits in an emerging nation.

This paper is organized into eight sections. Following this introduction, Section two reviews the impact of BC in accounting. Section three demonstrates barriers to BC implementation in accounting practices. Section four highlights relevant literature on BC. Section five outlines the proposed model, Section six presents the methodology, whereas Section seven discusses the results. Lastly, Section eight presents the study's implications and provides directions for future research.

2.The impact of blockchain innovation in accounting

Recent global advances in digital technologies have positioned BC as a paradigm-shifting innovation with the capacity to redefine professional practices, particularly within accounting and auditing. Rather than functioning as a conventional database, BC operates through a decentralized ledger architecture that ensures transaction data is permanently recorded, verifiable, and resistant to unauthorized alteration (Nguyen et al., 2025). These characteristics provide a technological foundation for improving measurement accuracy, streamlining accounting workflows, and reinforcing stakeholder confidence in financial disclosures. BC-related developments have accelerated significantly across both financial and non-financial sectors since 2021. Major cryptocurrencies, including Bitcoin and Ethereum, have experienced substantial valuation growth, stimulating intensified investment activity and institutional interest (Putritama et al., 2024). Correspondingly, BC applications have expanded beyond digital currencies to encompass decentralized finance platforms, tokenized digital assets, and increasingly complex smart contract infrastructures, reflecting a shift from experimental use toward broader commercial adoption (Alkababji & Mushtaha,2023; Giang & Tam, 2023).

From a technical standpoint, BC constitutes a distributed digital system in which data governance is shared among multiple participants rather than controlled by a centralized authority (Perera & Abeygunasekera, 2022). Each participant, referred to as a node, retains a complete copy of the ledger and participates in transaction authentication through consensus-based verification protocols (Matskiv et al., 2023). To implement BC effectively within accounting environments, organizations must develop purpose built blockchain architectures typically permissioned or private networks that align with accounting standards, internal controls, audit requirements as well. Shah et al. (2023) contend that technological improvements and urbanisation impact environmental sustainability, a viewpoint that can similarly be extended to the role of technology in promoting sustainability in accounting education. In the context of the digital switch of accounting through BC technology, the incorporation of BC concepts into accounting curricula has gained increasing significance. In addition to meeting the increasing need for blockchain-related skills in the workforce, this incorporation gives future accountants the information and abilities needed to work with digitally enabled accounting systems (Abdullah et al., 2024; Mougayar, 2016). Consequently, integrating BC education into accounting programs aids in the creation of a technologically flexible and long-lasting educational framework that can equip graduates for the evolving digital landscape of the accounting profession.

3. Key challenges of integrating blockchain innovation in accounting

Despite its transformative potential, the adoption of blockchain in accounting faces several significant challenges. First, BC systems are technologically complex, requiring specialized knowledge in distributed ledger technology, cryptography, and smart contracts (Anis, 2023). Numerous accounting professionals lack the technical expertise to implement and manage such systems effectively, creating a skills gap (Bellucci et al., 2022). In addition, integrating BC with existing accounting ecosystems presents difficulties, as legacy infrastructures are often incompatible with decentralized architectures. Effective integration typically requires substantial investment, careful planning, and sometimes the redesign of core accounting processes (Alkababji, 2025). Regulatory and legal uncertainty further complicates adoption. BC based accounting operates within evolving frameworks, and ambiguities regarding audit standards, data ownership, cross-border transactions, and legal recognition of BC records pose challenges for practitioners and regulators alike (Alkababji & Mushtaha,2023).

Data privacy and security concerns also remain critical, although BC ensures immutability, storing sensitive financial data on distributed ledgers may raise confidentiality issues, particularly in highly regulated industries (Kouhizadeh et al., 2021). Moreover, the high costs associated with BC adoption, including infrastructure, training, and software development can be prohibitive, especially for small and medium-sized organizations (Sarker,2025). Finally, organizational resistance to change may impede implementation, as accountants and managers may perceive BC as a threat to traditional roles, resulting in reluctance at both operational and strategic levels (Ayedh et al., 2021). In summary, the above-mentioned challenges pointed out that successful BC adoption requires not only technological investment but also regulatory alignment, professional training, as well as organizational readiness.

4. Literature review and hypotheses formulation

The introduction of cutting-edge information technology that improves financial reporting systems' efficiency, accountability, and transparency has expedited the digital transformation of accounting. Empirical evidence reports that the application of digital accounting systems contributes to improve monitoring of financial activities and the quality of financial reporting, thereby strengthening governance frameworks within organizations. Such systems facilitate higher transparency and accessibility of accounting information, which supports better accountability and decision-making and reduces the asymmetric information between management, stakeholders, and outside parties (Al-Hattami et al., 2024). Building on these

developments, BC innovation has additional strong opportunities to strengthen accounting and financial structures through the provision of unchangeable transaction records, decentralised verification methods, and increased trust in financial reporting procedures. According to Bellucci et al. (2022), BC innovation shows a significant potential for driving the digital transformation of accounting systems. Its potential to promote transparency, automate verification operations, and allow for more dependable financial reporting suggests that BC can considerably reshape accounting and auditing methods in the sophisticated global digital economy (Noori Doabi et al., 2025).

Despite the growing prominence of BC innovation within the accounting ecosystem in academic research and professional practice, empirical investigations into BC-enabled accounting systems remain relatively scarce. Existing studies indicate that a huge amount of the current literature is conceptual in nature, with limited evidence-based analysis examining real-world implementation and outcomes (Han et al., 2023; Hsieh & Brennan, 2022). Using a bibliometric and thematic approach, Sheela et al. (2023) systematically explored academic discourse on BC adoption in accounting and auditing by analysing sixty-seven publications indexed in the Web of Science between 2016 and 2022. Their study used Bibliometric for descriptive performance analysis for keyword co-occurrence and bibliographic coupling visualization. The findings classified the literature into three dominant research streams: BC enabled financial reporting systems, the transformation of auditing practices, and the accounting treatment and valuation of cryptocurrencies. Equally significant, the researchers identified persistent research deficiencies, including limited investigation of regulatory and governance dimensions, insufficient assessment of adoption risks in auditing, and weak coverage of taxation, disclosure, and compliance frameworks for crypto-assets. Following this mapping perspective, Garanina et al. (2022) conducted a large-scale structured literature review combining citation analysis, machine-learning-based topic modelling, and manual content assessment. Drawing on 153 articles published in high-quality listed journals, the study summarized that BC research in accounting remains largely conceptual and normative rather than empirical.

The researchers highlighted four central thematic areas: the evolving professional role of accountants, audit-related challenges, the dual opportunities and constraints associated with BC adoption, and regulatory responses to crypto-assets. In spite of BC's disruptive potential, the study suggested that accountants are more likely to shift toward strategic advisory and analytical roles, while auditors may assume continuous assurance and ecosystem-validation responsibilities. Empirical evidence from developing economies further enriches the literature. Alkafaji et al. (2023) investigated BC's effect on accounting information accuracy in both listed and non-listed Iraqi firms using survey data from 1,528 respondents. Their results illustrated that higher familiarity with BC innovation is positively related to improved accounting information quality, with consistent effects across firm types. Similarly, Zayed et al. (2023**)** adopted a mixed-methods design to explore how BC adoption influences accountants' skill development in Jordanian industrial firms listed on the Amman Stock Exchange. Interviews and survey responses from 50 professionals revealed that BC has significantly contributed to skill innovation and professional adaptability.

From a regional and international perspective, Ibrahim (2023) investigated BC applications in accounting by first reviewing global developments and subsequently conducting an exploratory study in Egypt. Using an online survey targeting accounting academics and practitioners, the study found that BC offers substantial professional opportunities but is also associated with implementation costs, technical complexity, and institutional barriers. Complementing this work, Anis (2023) assessed auditors' perceptions of BC-based accounting systems in Egypt and contended generally low-to-moderate understanding levels, emphasizing the need for targeted capacity building and regulatory guidance. A broader conceptual treatment of BC's implications for accounting research and practice is provided by the study of Bellucci et al. (2022)**,** that examined BC'S effects on accounting systems, auditing processes, crypto-assets, finance, and emerging business models. The study stressed key characters of BC including, triple-entry bookkeeping, transaction immutability, automation of routine accounting tasks, and the financial statement representation of cryptocurrencies. Recently, Abdullah et al. (2024) provide empirical evidence on the association between BC adoption and accounting education sustainability in Saudi Arabia. Their findings report that the adoption of BC has a significant positive influence on the sustainability of accounting education through supporting innovation, decreasing resource consumption, and providing high-quality education (Feliciano & Quick, 2022).

These arguments align with professional insights from the Institute of Chartered Accountants in England and Wales (ICAEW, 2023)**,** highlighting BC's long-term potential has the ability to reduce reconciliation costs, enhance asset provenance verification, and allow near real-time transaction validation. Related studies focused on operational and control implications. For example, Nguyen et al. (2023) found BC integration enhances accounting data security, transparency, and reliability, with real-time data tracking supporting more accurate adjustments and managerial decision-making. Elshqirat (2023) contended that although accounting and auditing standards might not be fundamentally altered by BC adoption, the innovation introduces new risk considerations and control requirements, while also reducing manual data duplication and human error. Eventually, Moriggl et al. (2023) highlighted BC's value as a secure, tamper-resistant data repository, emphasizing its relevance for long-term accounting data storage and accessibility, particularly in systems underlying cryptocurrencies for instance Bitcoin and Ethereum.

Overall, BC's accounting implications illustrate growing academic interest, which reveals a clear need for further empirical research to highlight unresolved regulatory, governance, and implementation challenges especially in developing nations such as Saudi Arabia. Accordingly, this study posited the following hypotheses:

H_1: *Budgeting Process (BP) has a significant effect on Blockchain adoption.*
H_2: *Transaction Recording (TR) has a significant effect on Blockchain adoption.*
H_3: *Accounting Adjustment (AA) has a significant effect on Blockchain adoption.*
H_4: *Awareness (AW) has a significant effect on Blockchain adoption.*

5. Research framework

The research model integrates several key variables to examine the relationship between BC innovation and the accounting ecosystem. Specifically, the framework posits that drivers of budgeting processes, transaction recording, accounting adjustment, and awareness significantly affect accountants' adoption of BC innovation within Saudi Arabia. These hypothesized relationships are illustrated in the study's framework presented in Fig. 1.

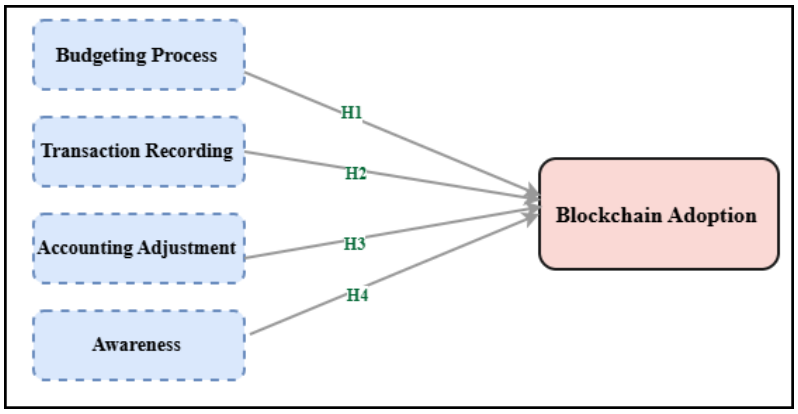

Fig. 1. Study's Framework (Source: the author).

6. Methodology

6.1 Research design

This study examines the degree of technological comprehension among accountants in Saudi Arabia concerning the integration of BC into accounting implementations. Furthermore, it evaluates their perspectives on the practical advantages and obstacles inherent in adopting BC within the accounting's setting. To provide a comprehensive analysis, a quantitative technique was used to collect data from accountants.

6.2 Data and sample

The population of this study comprises the participants of the accountant's community located in Saudi Arabia. A purposive sampling technique was applied to ensure the inclusion of key characteristics, specifically organizational size and experience. To calculate sample size and establish statistical validity, aiming to reach a confidence degree of 90% on a significance level of 0.05, and to guarantee the accuracy of the outcomes. The sample size was determined using G-Power software based on Cohen's (1988) power analysis guideline, which pointed out the sample size of 108 respondents based on the study's predictors. The collection approach, nevertheless, resulted in the gathering of 208 surveys, which were sent through Google Forms. For distributing the survey and collecting data, the author utilized various social media platforms (for example, email, Facebook, and WhatsApp). The research's final sample size of 208 surveys was deemed sufficient to represent the study population and support the validity of the research outcomes.

Table 1
Sampling Adequacy Analysis

KMO and Bartlett' s Tests	Stat
Total figure of surveys processed	208
Kaiser–Meyer–Olkin (KMO)- Measure of Sampling Adequacy	0.864
Bartlett's Test of Sphericity – Approx. (χ^2)	2186.34
Degrees of Freedom (df)	107
Sig	< .001

The sample adequacy analysis in Table 1 supports the sample of the study. The KMO scale presented a figure of 0.864, which exceeded 0.70, indicating meritorious sampling sufficiency. Moreover, this test showed quite a high significance level at $p < .001$, suggesting an appropriate sample. The adequacy of factor analysis is also confirmed by Bartlett's test, with a figure of 2186.34 χ^2 and 107 degrees of freedom. This implies excellent factorability.

6.3 Instrument design and data collection

An online questionnaire survey instrument is used to gather data from a variety of survey respondents, including accountants, chief of accounting, internal auditors, and CFOs from different Saudi organizations. It involves three key sections measured on a five-point Likert scale. The scale ranges from 1 "strongly disagree" to 5 "strongly agree". This allowed the researcher to examine the degree to which respondents agreed or disagreed with the survey's statements. Items were developed from previous related literature such as Ayedh et al. (2021), Kabir et al. (2022), Anis (2023), and Peprah et al. (2022). In addition, several demographic questions were formulated. The collection process followed a rigorous quality control protocol: an initial pilot test for content validity, subsequent refinement of the instrument, and online distribution strategy. To mitigate non-response bias, targeted platforms were used for dissemination, and follow-up reminders were issued, resulting in a final sample of 208 accurate responses. Appendix A demonstrates the measurement of the study's constructs.

6.4 Data analysis technique

Demographic characteristics were analysed using SPSS version 28, whereas the proposed hypotheses were evaluated through Partial Least Squares Structural Equation Modelling (PLS-SEM) employing Smart-PLS. PLS-SEM is particularly suitable for research models that incorporate multiple latent constructs based on relatively small sample sizes, as it places fewer distributional assumptions on the data compared to covariance-based SEM approaches (Hair et al., 2021). In line with these methodological considerations, SmartPLS was deemed the most appropriate analytical tool for testing the hypothesized relationships in this study.

7. Results

7.1 Descriptive results

As indicated in Table 2, the respondent profile was predominantly male, accounting for 71% of the sample, while female participants represented 29%. With respect to age distribution, the largest proportion of respondents (44.8%) belonged to the 25–39 age category.

Table 2
Demographic profile

Demographics	Groups	%
Gender	Male	71
	Female	29
	Total	**100**
Age	25-39	44.8
	40-49	33.4
	55 and above	21.8
	Total	**100**
Educational Level	Bachelor degree	66.0
	Master degree	15.0
	PhD degree	9.0
	Diploma	10.0
	Total	**100**
Current Position	Accountant	36.4
	Internal Auditor	26.6
	Chief of Accounts	15.5
	Manager of Accounts	14.4
	CFO	7.1
	Total	**100**
Experience	< 5 years	29.00
	5-10 years	40.3
	> 10	31.7
	Total	**100**
Professional level	SOCPA	33.5
	CPA, ACCA	21.2
	Others (e.g., CMA, CIA)	7.8
	No professional certification	37.5
	Total	**100**

Source: the author

This was followed by participants aged 40–49 (33.4%), whereas individuals aged 55 years and above constituted the smallest group at 21.8 %. In terms of educational level, the majority of respondents held a bachelor's degree (66%). Master's degree

holders accounted for 15% of the sample, while 9% reported PhD degree qualifications. Participants with a diploma's holder represented 10% of the total sample. 63% were financial accountants and auditors, with the other 37% having top positions. Around 40% of respondents have worked between 5 and 10 years, followed by a ratio of 31.7% with more than 10 years. At the professional level, a ratio of 37.5% indicates that respondents did not hold a professional certification, aligned with the accounting workforce in Saudi Arabia. While almost 34% of the surveyed obtain SOCPA, which is the prevailing domestic certification.

7.2 Reliability and Validity Assessment

The validity and reliability metrics for every research construct are shown in Table 2. The structural model was assessed within the SEM framework by performing a series of validity and reliability evaluations, including checks for nomological, convergent, discriminant, and face validity. Convergent validity was evaluated through average variance extracted (AVE), factor loadings, and internal consistency reliability, measured using Cronbach's alpha. These metrics confirm that the items corresponding to each construct share a substantial proportion of common variance. According to Hair et al. (2021), Cronbach's alpha values of 0.6 or above are considered acceptable, while AVE and factor loadings should reach or exceed 0.5 to indicate adequate convergence. As shown in Table 2, Cronbach's alpha for all constructs ranged from 0.771 to 0.794, demonstrating high internal consistency across the measurement items. Similarly, AVE values exceeded the 0.5 threshold, varying between 0.574 and 0.682, suggesting that each construct accounts for the majority of the variance in its indicators. Factor loadings were also all above 0.5, confirming strong associations between constructs and their respective measurement items. In summary, these results indicate that convergent validity is well established, and the measurement model shows robust reliability and validity.

Table 3
Reliability and Convergent validity assessment

Variable	Cronbach's Alpha	AVE
PD	0.775	0.659
TR	0.794	0.682
AA	0.782	0.662
AW	0.771	0.574

Source: the author

7.3 Discriminant Validity

The findings of the discriminant validity analysis are demonstrated in Table 3. It can be seen that the diagonal factors are larger than the correlations among constructs. This implies that the discriminant validity is good. The results represent that elements that measure the same construct have very high correlation values. This indicates that these elements properly represent their own constructs rather than any other constructs. This is obvious from the table, which shows that the correlated values between every construct and other constructs are lower than the construct's self-correlation values (Fornell & Larcker, 1981).

Table 4
Discriminant Validity

Variable	PD	TR	AA	AW	BC
PD	0.80				
TR	0.63	0.82			
AA	0.57	0.61	0.79		
AW	0.56	0.53	0.65	0.85	
BC	0.58	0.64	0.58	0.67	0.86

Source: the author

7.4. Regression Results

The analysis indicates that budgeting processes, transaction recording, and accounting adjustments are key drivers influencing the adoption of BC within the accounting ecosystem. As illustrated in Table 3, the budgeting process shows a positive effect on accountants' willingness to adopt BC in accounting functions, supporting H_1 ($\beta = 0.331$, $t = 5.141$, $p = 0.000$). Although the effect size is relatively modest, the result pointed out that accountants are somewhat more likely to integrate BC into their workflows. This outcome aligns with previous findings reported by Bellucci et al. (2022) and Ayed et al. (2021). Similarly, transaction recording demonstrates a strongly significant impact on BC adoption, particularly in relation to BC management, thereby supporting H_2 ($\beta = 0.418$, $t = 5.231$, $p = 0.000$). This result shows that accountants are more inclined to adopt BC when they perceive transaction recording as efficient and streamlined, consistent with the findings of Anis (2023). Furthermore, accounting adjustment implies a positive and statistically significant influence on BC adoption, validating H3 ($\beta = 0.264$, $t = 2.244$, $p = 0.013$). These findings corroborate prior studies by Alkababji (2025) and Kabir et al. (2022), highlighting the critical effect of accounting adjustment that plays a substantial role in encouraging individuals to adopt BC innovation in accounting practices. Finally, awareness of BC was found to have a significant effect on BC adoption, accepting

H_4 (β= 0.385, t = 2.917, p = 0.001). This finding supports previous studies by Anis (2023) and Ayedh et al. (2021), stressing that awareness of BC's advantages has a salient impact in stimulating its adoption among accountants in Saudi companies.

Table 5
Regression analysis results

Hypothesis	Relationship	*β*	T -Values	p -Values	Decision
H1	PD → BC	0.331	5.141	0.000	Supported
H2	TR → BC	0.418	5.231	0.000	Supported
H3	AA→ BC	0.264	2.244	0.013	Supported
H4	AW → BC	0.385	2.917	0.001	Supported

(Source: the author)

8. Conclusion, implications and future research

This research aims to assess the knowledge of accountants regarding the BC effect in Saudi Arabia. Additionally, the study explores the potential impact of BC on the evolution of accounting practice. The empirical results indicate that Saudi accounts have an acceptable degree of understanding concerning BC and digital assets. Furthermore, the results demonstrated that BC integration could positively regulate accounting workflows and enhance organizational efficiency. Nevertheless, the study stresses that practitioners should proactively evolve their professional skill sets to stay updated with these advancements. This study offers foundational insights into the accounting profession's perception of BC innovation, specifically focusing on their implications for financial record-keeping and attestation. The outcomes exposed that Saudi's accountants generally maintain an optimistic and informed outlook toward these innovations. These findings serve as a vital paradigm for the accountants of Saudi Arabia, and significantly provide a valuable cross-country reference for other developing nations navigating similar technological transitions. Evidently, the rapid evolution of BC entails a level of technical proficiency that exceeds the current foundational knowledge of many accountants. In order to remain relevant in an increasingly digital accounting landscape, there is an imperative demand for enhanced technical competencies.

This shift requires accounting instructors to merge advanced computer technologies into their curricula, ensuring that graduates are well prepared for future professional demands. Furthermore, professional development should continue beyond formal instruction; accounting firms and corporations need to implement robust training programs and specialized workshops to equip their staff with the practical skills necessary for BC amalgamation**.** As an exploratory study in a largely unmapped field, a quantitative approach was selected to capture detailed professional insights. Notwithstanding, the limited sample size suggests that the findings should be interpreted with consideration regarding their broader applicability. Future studies could extend this study by using qualitative methodologies to confirm these trends across larger populations. There remains a vital opportunity for researchers to broaden this inquiry into other developing nations and to track the evolution of accounting technologies. Equally important, this study provides the backbone for more extensive empirical research into the merger of BC innovation and the accounting domain (Kang, 2021).

Overall, BC represents a transformative pattern shift rather than a mere technological disruption, providing a unique opportunity to modernize the core foundations of accounting. Its effective implementation, however, requires coordinated efforts to align rapid technological advancements with evolving regulatory frameworks and professional standards. For practitioners, BC's value lies in its ability to enhance trust, transparency, and reliability, thereby fundamentally reshaping the landscape of financial reporting and assurance.

8.1 Theoretical implications

This study contributes to digital transformation in accounting research by extending technology adoption literature to the context of BC innovation in the context of an emerging market, Saudi Arabia. While prior research has largely emphasized conceptual discussions of BC's potential, this study provides empirical validation that BC adoption positively influences specific accounting practices, namely budgeting processes, transaction recording, and accounting adjustments. In doing so, it responds to scholarly calls for empirical examination of BC's actual impact on accounting operations rather than its anticipated benefits alone (Sarker, 2025). Moreover, the findings support theoretical arguments that BC functions as a transformational infrastructure technology, capable of reshaping accounting information systems through enhanced transparency, immutability, and real-time verification.

By indicating improvements in core accounting operations, the study supports theories linking distributed ledger technologies to improvements in accounting information quality and internal control mechanisms (Alkafaji et al., 2023). Finally, by focusing on Saudi Arabia's context, this study enriches the contextualization of adoption theories within emerging economies. A huge number of existing studies are concentrated in developed economies, limiting theoretical generalizability. This research adds empirical depth by illustrating how institutional and economic settings influence BC adoption, therefore refining acceptance models for emerging economies (Kouthizadeh et al., 2021).

8.2 Practical implications

From a practical perspective, the outcomes offer actionable insights for organizations and accountants seeking to adopt BC innovation in accounting practices. The demonstrated positive effects on transaction recording and accounting adjustments report that BC can significantly enhance data accuracy, audit trails, and reconciliation efficiency. Business may hence prioritize BC implementation in areas involving high transaction volumes and compliance-sensitive records to maximize operational benefits (Alkababji, 2025). The study also highlights the importance of developing innovation capabilities within accounting functions. Managers and firm leaders should complement technological investments with targeted training, professional development, and digital skills enhancement to ensure accountants can effectively work with BC-enabled systems. Prior research indicates that insufficient technical knowledge remains a major barrier to BC adoption in accounting practices (Schmitz and Leoni, 2019). Regulators and policymakers can adopt the empirical evidence of this study to create supporting regulations that encourage the adoption and integration of BC in the domain. As BC modifies traditional record-keeping and verification processes. Accordingly, policymakers should address issues related to data ownership, audit responsibility, and assurance in blockchain-based environments (ICAEW, 2023). Lastly, this study assists in generating a reference point for accounting practitioners, policymakers, and scholars in Saudi Arabia by providing empirically grounded insights that can inform national digital transformation initiatives and support broader adoption of emerging technologies, such as BC innovation in the accounting practices.

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Institutional review board statement

Not Applicable

Data availability statement

Upon a reasonable request, the supporting data of this study can be provided by the corresponding author.

Conflicts of interest

The author declares no conflicts of interest.

Disclosure of AI Use

The author used OpenAI's ChatGPT to edit and refine the wording of the introduction and literature review. All content was thoroughly reviewed and verified by the author.

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Appendix A

List of measurement items

A1. Measurement of Constructs

Construct	Code	Measurement	Reference
Budgeting Processes (BP)	BP1	Budgeting process can organize financial planning and control.	Anis (2023) and Ayedh et al. (2021)
	BP2	Budgeting can improve resource allocation and cost management.	
	BP3	budgeting can enhance organizational agility in responding to financial changes.	
Transaction Recording (TR)	TR1	Blockchain-based transaction recording reduces manual data entry error.	Dai and Vasarhelyi (2017)
	TR2	Blockchain technology enhances the transparency of transaction records.	
	TR3	Transactions records using blockchain technology are more accurate than traditional systems.	
Accounting Adjustments (AA)	AA1	Accounting adjustments can maintain accurate financial statements.	Ayedh et al. (2021) and Kabir et al. (2022).
	AA2	Accounting adjustments can prevent financial misstatements and errors.	
	AA3	Accounting adjustments can improve financial decision-making.	
Awareness (AW)	AW1	The potential applications of blockchain technology are understandable.	Anis (2023)
	AW2	Blockchain technology can be used for accounting purposes.	
	AW3	Blockchain technology can revolutionize the accounting function.	

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