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KNOWLEDGE, ATTITUDES & PERCEPTIONS (KAP) OF BLOCKCHAIN TECHNOLOGY IN AUDITING: A CASE OF PAKISTAN

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Abstract
Evolution of emerging technologies is reshaping auditing and financial reporting. Blockchain Technology (BCT) is one of these technologies and is considered capable of affecting the auditing. It is increasingly recognized as a transformative innovation with the potential to reshape auditing practices. Nevertheless its adoption in auditing is affected not only by its technical capabilities but also by auditors' knowledge, attitudes, and perceptions. In the context of Pakistan the present study examines these factors, as the auditing profession continues to face challenges related to efficiency and transparency. Qualitative research design was used based on semi structured interviews with thirty (30) auditing professionals including Chartered Accountants (CAs), trainee students, and experts affiliated with professional bodies. Data was analyzed through thematic analysis to identify recurring patterns in interviewees' responses. The results indicate that while auditors generally demonstrate a reasonable level of awareness of BCT, their understanding of its practical application in auditing remains limited. Attitudes toward the technology are cautiously optimistic. The participants acknowledged its potential to enhance audit quality, reliability and reduce dependence on intermediaries. At the same time some concerns related to lack of technical expertise, data privacy, implementation costs and regulatory uncertainty considerably affect their perceptions and willingness to adopt BCT. Although the auditing professionals in Pakistan recognize the strategic importance of BCT but its broader adoption depends on targeted professional training, greater institutional willingness and development of supportive regulatory frameworks. By offering empirical insights from the audit professionals, this study contributes to the limited literature on BCT adoption in developing economies and provides practical implications for professional bodies, regulators and audit firms seeking to support digital transformation in the auditing.

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INTRODUCTION

Emerging technologies have shaped the ways of doing business. One of these emerging technologies is Blockchain Technology (BCT). Blockchain is a decentralized, distributed digital ledger used to record transactions across multiple computers, making it relatively impossible to alter any record without modifying all subsequent blocks (Tapscott & Tapscott, 2016). BCT is a fast-evolving technology, characterized by exponential growth and multiple components (Ragnedda, 2019; Appelbaum & Smith, 2018). Alongside other emerging technologies, such as Artificial Intelligence (AI), cloud computing, and the Internet of Things (IoT), BCT is expected to exert a significant influence on accounting and auditing. Hence, it is important to have good know-how about this emerging technology (Algaloud, 2025).

Auditing has long been associated with monitoring organizational activity, providing information, and offering a form of financial assurance (Jeacle, 2017). The role is evolving as the scope of audits expands and the expectations from the profession increase (Jeacle, 2017). For the audit profession to remain relevant, it must adapt its approaches to meet these changing expectations. However, prevailing audit practices continue to rely on periodic verification, limited data access and sample-based procedures. In emerging economies, such as Pakistan, these challenges are more pronounced because of technological infrastructure, data manipulation, and regulatory development (Rashid et al., 2023).

While BCT offers clear technological promise, its use in auditing does not depend on technical capabilities alone. In practice, the adopted depends on how auditors understand the technology, how they evaluate its usefulness, and how they judge its feasibility. Accordingly, this paper adopts the Knowledge-Attitude-Practice (KAP) framework similar to that used by Liao et al. (2022) to examine auditors' knowledge, attitudes and perceptions of BCT ((Mehtab et al., 2015). The KAP framework provides a structured approach to assess how individuals understand, evaluate, and interpret a given phenomenon (Launiala, 2009). In its traditional form, the KAP framework include 'practice' as actual behaviour (Zarei et al., 2024). However, because BCT remains an emerging technology with limited implementation in auditing, particularly within the Pakistani context, this study does not examine actual practice. Instead, consistent with Kharim et al. (2024), it focuses on perceptions as an alternative lens for capturing behavioural readiness among respondents regarding emerging technologies in auditing contexts. Auditors' knowledge relates to their grasp of BCT concepts and applications, their attitudes capture their evaluation of relevance to audit work, and their perceptions shape how they view potential risks, feasibility, and implementation challenges. In case

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the auditors do not have a strong understanding of BCT or remain restrained in their views, these factors may slow down adoption, even where the benefits of BCT are recognized.

Previous researches have examined the role of BCT in accounting and auditing (Rückeshäuser, 2017; Chedrawi & Howayeck, 2018; Dai & Vasarhelyi, 2017; Fanning & Centers, 2016). However, there is still limited empirical evidence on auditors' knowledge, attitudes and perceptions remains limited, particularly in developing economies. Variances in institutional support, professional training, and regulatory capacity suggest that findings from developed countries may not fully apply to Pakistan. In the light of this, it is important to explore auditors' perspectives within specific context. This study therefore, addresses the following research question:

What level of knowledge, attitudes, and perceptions do auditors in Pakistan hold regarding BCT?

To answer this question the study adopts a qualitative research design based on semi-structured interviews with 30 auditing professionals in Pakistan. This approach enables a detailed understanding of how auditors perceive BCT, its potential use in auditing. As well as how they view the opportunities and challenges associated with its use. The data is analyzed using thematic analysis, following the approach outlined by Elommal and Manita (2022). The results indicate that although most auditors show general awareness of BCT, their understanding of its practical applications in auditing is still limited. Attitudes towards adoption tend to be cautiously optimistic. Whereas, their perceptions are influenced by anxieties related to limited technical expertise, the level of institutional support available and implementation costs. These elements play an important role to influence auditors' willingness to adopt BCT in their professional work.

The current study provides practical insights for audit firms, professional bodies, academic institutions and regulators in Pakistan. It emphasizes the importance of strengthening education related to BCT, enhancing professional training and developing clearer regulatory frameworks. Such steps are necessary to improve auditors' knowledge, shape their attitudes and perceptions to support the effective adoption of BCT within the auditing.

LITERATURE REVIEW

BCT has gained significant attention due to its potential to transform conventional auditing practices. According to Idlebi (2019), "Blockchain is a decentralized database designed to securely store different types of data, including financial transactions in a way that is resistant to tampering." It helps maintain accuracy and reliability of data and improves trust among the users.

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Blockcahain can be understood as a decentralized digital ledger which records transactions across multiple computers simultaneously. Blockchain consists of a series of interconnected blocks that process and store data, with the chain expanding as new blocks are added over time. Each block contains a cryptographic hash and a digital signature, which play as important role in protecting data from tampering and maintaining data security (Du et al., 2019; Zhen et al., 2018; Ahmad et al., 2019). Because each block is linked to one before it, no record can be altered without changing all the following blocks (Tapscott & Tapscott, 2016). As a rapidly developing technology BCT is marked by exponential growth and a variety of interconnected with other systems (Appelbaum & Smith, 2018; Ragnedda, 2019). Alongside other emerging technologies such as cloud computing, Artificial Intelligence (AI) and the Internet of Things (IoT), it is expected to significantly influence auditing practices. As a result this growing influence has made the integration of information systems knowledge with financial expertise more important than ever in the auditing profession (Algaloud, 2025).

Subject to the users' permission, BCT facilitates the recording of transactions in either private or public networks, enabling entities to maintain balance between confidentiality and transparency. It strengthens corporate governance by reducing information asymmetry and improving transparency (Swan, 2015; Yermack, 2017). Access can be controlled by defining who is permitted to add blocks to the chain and what information can be shared. This makes it possible for entities to maintain internal shared ledgers while securely providing validated information to external stakeholders such as auditors, creditors and members (shareholders). Beyond this BCT has the potential to reshape market structures and influence modern business theories (Casey & Vigna, 2018). It may also guide future policy directions by improving audit efficiency, reducing fraud risks and supporting enterprise development. Through faster audit procedures, reduced time and effort, and fewer human errors, it enhances audit quality, while also presenting both opportunities and challenges for auditors (Al Habashneh & Hamdan, 2023). Many researchers describe BCT as a paradigm shift across a range of business processes (Dai & Vasarhelyi, 2017; CPA & AICPA, 2017). Like other disruptive technologies, it presents both risks and opportunities. While it enhances the reliability and timeliness of data (Coyne & McMickle, 2017; Kokina et al., 2017) it also raises important questions about the future of traditional auditing practices (Casey & Vigna, 2018; Tapscott & Tapscott, 2016).

Conventional auditing methods are often labour intensive, time consuming, and costly. Auditors rely on manually reviewing information systems, obtaining third party confirmation and collecting physical documents.

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Adoption of BCT can reduce the need for these manual procedures. When applied effectively, it enables innovative audit techniques that make processes more reliable, transparent and efficient (Yermach, 2017; CPA Canada & AICPA, 2017; Coyne & McMickle, 2017; Dai & Vasarhelyi, 2017; Rückeshäuser, 2017; Kokina et al., 2017). Dai and Vasarhelyi (2017) suggest that Blockchain could over time even replace traditional accounting systems by reducing information asymmetry, providing trustworthy data and strengthening internal controls. BCT's impact extends beyond auditing and is already evident across industries such as trade, transportation, healthcare, public services, financial services, and agriculture (Ølnes et al., 2017; Tan & Low, 2017; Yermack, 2017).

Appelbaum and Nehmer (2017) highlight that blockchain improves the security, reliability and transparency of audit information. Entries recorded on a blockchain are generally considered more trustworthy because it is verified by network users before being added. Schmitz and Leoni (2019) further note that blockchain supports continuous auditing by allowing transactions to be verified in real time. Once recorded, the data cannot be changed, which helps preserve both security and integrity. Kokina et al. (2017) also point out that blockchain reduces the need for traditional reconciliation processes, that are usually required to address resolve inconsistency across multiple information systems. This not only lowers the risk of misrepresentation and fraud but also speeds up transaction processing, thereby, improving overall audit effectiveness. It reduces the time auditors spend on tasks such as third party confirmation and reconciliations as well (Schmitz & Leoni, 2019).

Despite these advantages, there are concerns about how BCT may affect the auditors' role. According to Tysiac (2017) immutability and increased transparency of BCT data could reduce the need for certain conventional audit procedures. Particularly those focused on verifying whether entries have been changed. Which helps entities to rely less on auditors for these functions. Desplebin et al. (2021) adopting broader view of auditing role contend that auditing is not limited to verifying data accuracy but also include risk assessment, compliance evaluation and provision of strategic insights.

The available literature suggests that the BCT's adoption is not only driven by technical factors but also points to institutional, organization and behavioral influences in shaping how new technologies are received in professional environments. Peter and Panayi (2016) contend that trust in institutional oversight and governance structure play key role in determining whether BCT systems are accepted in practice or not. Similarly Appelbaum et al. (2017) highlight the barriers to adoption within the audit firms including gaps in

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technical knowledge, uncertainty about regulatory expectations and resistance to established practices.

Studies suggest that technological willingness does not always lead to professional acceptance of new technology. Without strong organizational support and structured training, advanced technologies are unlikely to become part of routine audit practices (Issa et al., 2016). According to Carson et al. (2016) automated systems may be perceived as increasing liability or limited professional discretion when outcomes are difficult to explain or challenge. Accordingly the audit professionals' restrained reactions to emerging technologies are often linked to concerns about professional judgment, legal exposure and accountability.

BCT's immutability, cryptographic security and transparency are key factors in shaping confidence in it (Casino et al., 2019). The auditing professionals need to balance their professional duty to protect clients' confidentiality with the transparency provided by BCT. Data privacy remain important concern when sensitive data is stored on shared ledgers (Zheng et al., 2018).

Previous studies suggest that experts tend to adopt emerging technologies when they have solid understanding of how these technologies function and related to their roles (Juma'h & Li, 2023). The challenges associated with adopting BCT are often more pronounced in many developing economies. Mbaidin et al. (2021) contend that the adoption outcomes are shaped not only by technological feasibility but also by regulatory, culture and boarder economic conditions. Similarly, regulatory uncertainty, limited skilled professionals and limitations in technological infrastructure can all constrain the practical application of advanced digital systems. Kshetri (2018) highlights that inconsistent enforcement mechanism and weak institutional framework often obstruct BCT initiatives in emerging economies.

In the context of auditing knowledge of BCT goes beyond general awareness. It includes the concept of immutability, the functions of smart contract, familiarity with distributed ledger systems and how these features may affect verification procedures, evidence collection and audit planning. Without the basic level understanding a meaningful adoption is unlikely. Studies on technology adoption also emphasize the importance of subjective evaluation and individual understanding. In this regard the KAP framework offers a useful perspective for examining how professionals engage with new technologies.

Available empirical data suggests that auditors' knowledge of BCT is not consistent. Access to formal or structured training in still quite limited in many developing economies. Because of this the auditors often rely on informal discussion, professional seminars or self-directed learning to build

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their knowledge (Georgiou et al., 2024; Juma'h & Li, 2023). It tends to create uneven levels of capability, where auditors may understand the concept in general terms but are less clear of about how it applies in practice. In Pakistan, where the use of BCT in auditing is still in its early stage, there is only limited empirical evidence on auditors' actual level of confidence and knowledge (Islam, 2025).

Having knowledge of the technology does not necessarily lead to its adoption. Similarly, attitudes play an important role in shaping such decisions. Research on technology acceptance has consistently shown the positive attitudes tends to support adoption whereas perceived risk or skepticism can slow it down (Nguyen et al., 2021; Venkatesh et al., 2012). Numerous professionals consider BCT as tool that could improve transparency, enhance audit quality and strengthen audit trails. While some professionals adopting cautious approach highlight their concerns regarding professional accountability, unclear regulatory frameworks, technical complexity and the potential impact on traditional audit roles. Such differing opinions suggest that attitudes towards BCT are shaped not only by individual views but also by wider regulatory and institutional conditions. In this context perceptions of complexity, risk and usefulness continue to play a key role in influencing adoption decisions.

Research by Venkatesh et al. (2012) shows that perceived ease of use and expected benefits are key factors influencing technology acceptance. In a similar vein Janvrin et al. (2013) find that greater exposure to emerging technologies is linked to more positive attitudes among accounting professionals, whereas Curtis and Payne (2014) highlight that audit judgements are affected by auditors' trust in technological outputs. Taken together, these findings highlight the importance of understanding how auditors evaluate and interpret BCT instead of focusing only on its technical attributes. It is worthy to mention here that the traditional KAP framework include 'practice' as actual behaviour. However, given the limited implementation of BCT in auditing, especially in Pakistan, this study does not examine observed practice and instead focuses on perceptions as an indicator of behavioural readiness of BCT adaptation.

In Pakistan, research on the auditing profession has traditionally concentrated on audit quality, compliance, and professional education, with relatively little attention given to the effect of digital innovations and adoption on auditing profession. Existing studies suggest that the profession faces constraints related to digital skills development, institutional support, and regulatory clarity (Atique et al., 2021). The limited focus on BCT within this body of work

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points to a significant gap, particularly with respect to how auditors themselves perceive and understand the technology.

METHODOLOGY

This study employs a qualitative research design, using semi-structured interviews to obtain in-depth insights into auditors' knowledge, attitudes, and perceptions regarding BCT in auditing. A qualitative approach is considered appropriate because the adoption of emerging technologies such as BCT is still evolving within the auditing profession, and auditors' views, concerns, and interpretations are not yet well understood (Khan & Khan, 2026; Khan et al., 2011; Rashid et al., 2023; Creswell, 2009). The chosen research approach facilitates the exploration of complex issues such as data privacy, decentralization and trust, which are not easily captured through structured quantitative methods. Interviews were chosen as the primary data collection method as they are recognized widely as an effective way to gather qualitative insights (Khan & Khan, 2026; Barghathi et al., 2021; Khan et al., 2013. These are particularly useful in understanding, how participants interpret their experiences and how they perceive the issue under question. As noted by Helen et al. (2007) qualitative research seeks to understand phenomena from the perspectives of those involved directly, ensuring that their views are represented accurately. In this study semi-structured interviews were used as main data collection method. This approach offers a balance between flexibility and structure allowing the researcher to consistency while exploring specific area in greater depth when needed (Barghathi et al., 2025; Mashuri et al., 2022; Jasir et al., 2023; Magaldi & Berler, 2020). Compared to structured interview semi structured interview offer richer understandings and support more interactive and dynamic dialogue between the participants and interviewer (Rubin & Rubin, 2011; Polit & Beck, 2010; Galletta, 2013). This method permits participants to express their experiences more freely and in greater detail (Kallio et al., 2018).

This study adopts convenience sampling, a non probability technique where participants are chosen based on ease of access and their availability (Baltes & Ralph, 2022). This approach focuses on individuals with auditing expertise, including CAs, trainees, and others associated with professional bodies such as the Institute of Chartered Accountants of Pakistan (ICAP) and other Global Accounting Bodies. According to Annual Report 2024, ICAP had 10,096 CAs, with 81% working in Pakistan and 19% employed internationally. This method is particularly suitable for exploratory research as it enables the efficient identification of individuals with relevant knowledge. Care was taken to include individuals with varied firm sizes, level of experiences, degree of exposure to technology and professional roles in order to apprehend a

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comprehensive range of views. For the sampling process a list of 200 individuals comprising CAs, Certified Chartered Accountants (CCAs), and trainees was compiled. Many of these professionals were associated with the Digital Audit Assurance Board (DAAB) and different Regional Committees formed by ICAP. Initial contact was made through email invitations, after several follow-ups some of these individuals agreed to participate. Participants received the interview questions beforehand so they could think about the response and review in advance. This led to more detailed responses, and help reduce and potential anxiety during the interviews (Haukås & Tishakov, 2024).

The interview process continued till data saturation was reached meaning no new themes / ideas emerged and the responses began to repeat (Mason, 2010; Kerr et al., 2010). Most ideas were already recurring with only limited new perspectives by the 30th interview. It was evident that no new insights were being generated by the 30th interview suggesting that additional data collection would not provide meaningful value. The process was therefore concluded at this stage. In qualitative research data saturation is widely accepted as an appropriate benchmark for determining sample size (Guest et al., 2006).

As extensive review of the literature was conducted prior to the development of interview guide in order to establish a conceptual framework and key themes for the research (Kallio et al., 2016). Building on this foundation the semi-structured interview guide around the core dimensions of KAP framework was organized. The questions were designed to assess interviewees' understanding and awareness of BCT, their attitudes towards its adoption and their perceptions of its implications for auditing.

A total of thirty (30) semi-structured interviews were conducted between October 2023 and March 2024 with each interview lasting around seventy (70) minutes. Twenty two interviews were carried out fact to face, 7 were conducted by telephone and one took place via Google Meet to accommodate interviewees; geographical locations and professional commitments. The interviewees varied widely in age, ranging from twenty one (21) to seventy two (72) years. Their professional experience spanned from one and half (1.5) to fifty one (51) years. The sample included twenty four (24) male and six (6) female auditors, most of whom were affiliated with audit firms located in Karachi, Lahore and Peshawar while one interviewee was from Public Organization in Bannu and another was affiliated with manufacturing concern in Gujranwala.

Most of the participants were not comfortable with audio recording and did not provide any explanation for their preferences. Only two of them agreed to

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be recorded while the rest to protect their privacy preferred detailed note taking. In cases where recording was not allowed thorough handwritten notes were taken during the interviews, capturing the important quotations, key points and examples (Khan, 2011). There notes were expanded and clarified immediately after each session to improve their accuracy and completeness following recommended qualitative research practices to avoid losing important details (Miles et al., 2014). This approach ensured that despite the lack of recordings the main substance of the discussion was preserved. The two (2) recorded interviews were transcribed word for word and carefully checked for accuracy.

Interview notes were checked with interviewees to clarify specific point where needed. The data was analyzed using thematic analysis - a widely used method for identifying, examining and reporting patterns in qualitative data (Braun & Clarke, 2006). This methodology allows for nuanced and a detailed understanding of participants' perspectives and experiences (Evrard et al., 2022). Themes can be developed using either a deductive or inductive approach (Kiger & Varpio, 2020; Braun & Clarke, 2006. A deductive approach was used in this research, with predefined themes drawn from the existing literature and aligned with the KAP framework serving as basis for analysis. To ensure accurate representation of the collected data these themes were subsequently reviewed and refined.

The interpretation of the results did not rely on additional theoretical models, instead it remained grounded in the KAP framework. In line with established methodological literature both verbatim transcripts and expanded interview notes were treated as valid qualitative data sources, consistent with established methodological literature (Saunders et al., 2011; Creswell, 2009). This method maintained consistency across the introduction, research question, data collection process and analytical framework supporting a structured but contextually grounded analysis of auditors' knowledge, attitudes and perceptions of BCT.

FINDINGS & DISCUSSION

In this section the main findings are presented and discussed based on the semi structured interviews with audit professionals. The analysis is based on themes identified through review of the literature, ensuring alignment with the study's research question which provides useful basis for understanding how participants view the BCT's emergence in auditing.

KNOWLEDGE OF BCT

BCT's awareness helps individuals and organizations to better understand its potential, improved security, including enhanced transparency and greater operational efficiency. It is critical in the current digital environment

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(Tapscott & Tapscott, 2016). Its understanding can help professionals to make informed decisions and engage more effectively with emerging technologies (Tappsocott & Tapscott, 2017).

The interview analysis indicates that auditors generally possess a strong level of awareness and broadly positive perception of BCT. 86.67% of the participants indicated that they are familiar with BCT associating it with cryptographic protection and secure data storage. These findings are consistent with Parmoodeh et al. (2023), who also found high level of awareness regarding BCT among professionals in leading firms, but differ from with Jayathilake and Seneviratne (2022), where 83% of respondents were not familiar with BCT. Majority of them connected it with decentralized data validation, secure data storage and encryption mechanism. Which indicates that their more than just basic recognition of the BCT term.

CA1 referred BCT as

"Technology used for data validation."

According to CA2:

"BCT is a smart way to keep records in a business group. Each piece of information is stored as a block and these blocks are connected in a secure and organized chain. This makes information sharing within the group clear and secure."

In the view of CA16

"BCT is a technology used for recording transaction; it is a decentralized and immutable ledger"

It was expressed by AC1 that:

"BCT is digital form of record keeping that is decentralized, and the records cannot be manipulated."

This suggests that according to the participants BCT is a broader system used for recording and managing data. It demonstrates that their understanding goes beyond its used in digital currencies or Bitcoin.

Contrary to this thirteen (13) percent of the interviewees associated BCT exclusively with digital currencies, suggesting that misconceptions remain. As CA3 referred BCT to

"A technology used in Crypto Currency."

CA8 expressed an understanding by stating:

"What I understand is that it is a framework where payments are made within a network without using currency."

ATTITUDE TOWARDS BCT

Consistent with Samrah (2018) who describes BCT as "revolutionary" for improving transparency and security across different sectors, 73.33% of interviewees expressed confidence in BCT by emphasizing its robust

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cryptographic mechanisms. This indicates generally positive attitudes despite of some reservations towards BCT. This attitude is evident from the statement of CA1 who elaborated that:

"It uses encryption, and the data is stored after being validated by every user."

Contrary to the opinion of majority 26.67% of the participants showed reservations, pointing to user acceptance, developer integrity and regulatory uncertainty as potential risks. CA4 emphasized the trust in BCT is dependent on how it is designed and implemented by stating that:

"It is trusted subject to the application design and implementation."

Similarly CA8 stated:

"I believe the trust level is moderate, but other factors, such as corruption, also need to be taken into account."

In the meantime two (2) interviewees stayed undecided by stating that there is not enough empirical data to properly assess the long term reliability of BCT. CA6 stated that:

"The data protection level is unknown. This need to be implemented first, so I cannot comment at this time."

Similarly, CA10 stated:

"At this stage I am unable to comment."

Consistent with Saifedean (2016) 73.33% of professionals viewed the concept of decentralization positively referring it as a key and beneficial feature of BCT. According to Saifedean may reduce reliance on intermediaries. CA2 reflected this perspective by noting:

"Decentralization helps in maintaining security and integrity of data."

Contrary to this 26.67% of the interviewees expressed more ambivalent or nuanced views, noting that decentralization may complicate governance structures while enhancing transparency. According to AC2:

"Technology tends to centralize control, but I believe that the use of BCT could reduce or eliminate such centralized control."

Such differing views show that the perceived value of decentralization depends on the context in which it is applied rather than solely on the conceptual utility of BCT.

86.67% of the interviewees reflecting the same view as Chiu and Shang (2019) considered BCT would play role to reduce dependency on intermediaries. Referring to this ability CA4 stated that:

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"Blockchain can reduce dependence on intermediaries by enabling direct peer-to-peer transactions through its decentralized structure and smart contract capabilities."

Acknowledging BCT's ability to reduce such dependency some participants expressed concerns about the need for specialized expertise to manage it effectively despite its decentralized nature. CA6 referred to the same point by stating:

"I believe this aspect pertains to a technical issue of BCT, and as an auditor, I am not in a position to comment on it."

Considering these views of the participants it can be inferred that there is a need to balance technological innovation with suitable governance frameworks to take advantage of its utilities while maintaining the necessary regulatory oversight.

PERCEPTIONS OF BCT'S ROLE IN AUDITING

Consistent with Yu et al. (2018) a large majority (83.33%) of the participants suggested that BCT through its immutable ledger structure, can enhance data accuracy, minimize errors and reduce reconciliation problems indicating that it holds considerable potential to address limitations in conventional accounting systems. Such understanding is evident from the statement of CA2:

"Yes it can address some of the problems faced by traditional accounting systems by eliminating certain repetitive tasks and controls."

Contrary to the majority view a smaller group (16.67%) of these professionals offered a more cautious perspective by highlighting concerns regarding limited extent of empirical data and system complexity.

Confirming the views of David et al. (2018) all the participants stressed on safeguarding sensitive data to maintain trust in digital systems. All of them emphasized on data privacy problem and stated that addressing this problem must be ensure during the implementation of BCT systems. As CA8 stated that:

"There should be a zero-tolerance policy, as data privacy is a critical factor for any technology or application."

At the same time CA9 highlighted the need to maintain balance between the confidentiality and transparency by noting:

"Privacy is the key to maintaining industry leadership. BCT can potentially expose marketing strategies, supplier information, and customer data."

Consistent with the findings of Zheng et al. (2018) who stressed BCT's strong cryptographic protection ability, 56.67% of the interviewees referred to it as a

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secure technique for data storage due to the use of encryption and private key mechanism. CA7 acknowledged its ability to keep data secure by stating:

"Yes, provided that effective controls and supervision are in place. A strong data backup policy is essential."

Contrary to this understanding 43.33% of respondents due to the novelty of BCT showed skepticism or uncertainty. These views are reflecting the statement of CA13:

"It depends on the security of the system being developed; if the system is secure, the data will remain protected."

These responses exhibit a cautiously optimistic stance towards BCT adoption and suggest meaningful understanding of BCT of audit professionals in Pakistan. Despite identifying potential benefits like enhanced transparency, improved efficiency, strengthened audit procedures, and reduced dependence on intermediaries, they also expressed concerns related to data security, scalability, security, implementation cost and regulatory uncertainty which shape their confidence in its practical application. This demonstrates balanced openness rather than resisting it. They acknowledged its growing relevance the evolving technological environment while also stressing the importance of well-defined implementation framework and clear regulatory guidance.

CONCLUSION

The views of the respondents indicate that most of them recognize clear value in BCT by referring to its potential to modernize audit processes, strengthen audit trails and enhance transparency. Their generally positive attitudes towards BCT is because of this apparent utility. They believe that it can improve efficiency and reliability of auditing in practical terms which plays a key role in shaping their favorable views. Only considering the perceived usefulness is not sufficient to ensure adoption, these interactions revealed hesitation among them which is driven by practical considerations. Anxieties related to data privacy, governance, implementation standards and regulatory framework suggest that audit professionals assess it beyond its theoretical utilities.

They also consider whether the wider perspective comprising technical standards, control environment and legal framework - is considerably robust to ensure responsible use of BCT. Such cautious views reflect professional judgment rather than resistance to technological advancement. Their acceptance is conditional, therefore they expect its implementation to be secure, structure and properly regulated. The findings suggest that satisfaction of these conditions would likely increase BCT's adoption. The participants acknowledge the professional relevance of BCT and indicate that

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a foundation for its adoption is already in place. But their willingness to fully integrate it into auditing practices depends on how effectively issues of data security, regulation and governance are addressed. This is expected to result in cautious optimism to evolve into more active adoption with stronger institutional support and clearer framework.

Considering the current study it is pertinent to recognize certain limitations. Convenience sampling was used rather than using random sampling to select interviewees. Although efforts were made to select individuals with relevant expertise still their views may not represent the entire population of audit professionals in Pakistan. As the findings of this study reflect the professional and regulatory environment in Pakistan, careful consideration is needed to apply these conclusions to other jurisdictions. Respecting the personal preferences of the participants, most of the interviews were not recorded. Instead, detailed notes were taken and expanded immediately after each interaction. It is possible, that during this process some emphasis and nuances in tone may not have been fully captured. The study focuses on perceptions rather than actual implementation due to non-availability of BCT based application or environment, therefore, the responses are based on professional expectation and judgment rather than practical experiences. Use of thematic analysis might introduce some degree of subjectivity, which is common in qualitative researches.

This study presents important practical implications for audit firms, professional bodies and regulators. Investing in targeted professional training, developing implementation guidelines and enhancing regulatory clarity can facilitate audit professionals' progress from awareness to adoption. In the absence of institutional support the potential benefits of BCT are unlikely to be fully realized.

Considering this study, it is suggested that future research adopt quantitative approach considering more diverse and larger samples to enhance the generalizability and applicability of BCT. Studies may be conducted to compare different countries and regulatory settings which may offer deeper insight into how audit professionals' acceptance of BCT is influenced by institutional contexts. To track changes in auditors' perceptions as BCT applications become more established over time in practice, longitudinal research needs to be conducted. Further research may be conducted for exploring factors such as training requirements, firm level implementation strategies and organizational willingness. To expand the scope and contribute to a comprehensive understanding of BCT integration in auditing environment include the potential clients, IT professionals and regulators

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