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Research Paper

Blockchain Applications in Accounting and Finance: Qualitative Evidence from the Banking Sector

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ABSTRACT:
The fourth industrial revolution, or Industry 4.0, has revolutionized the landscape of the whole business environment in recent years. Among these technologies, blockchain is one of the most significant and inventive to emerge in recent years. The purpose of this study is to identify current blockchain advances for significant accounting and finance activities in the banking sector. It addresses the following research questions using focus group interviews and relevant literature. a) What are the possible applications of blockchain technology on various functions of accounting and finance? b) What are the benefits of using blockchain technology in accounting and finance with reference to the banking sector? c) What are the challenges associated with the use of blockchain technology? d) What is the status of blockchain in the banking sector in the Sultanate of Oman? Using a semi-structured The respondents were accounting and IT managers and employees in different banks in Oman.Based on focused group interviews, it also highlights how well bank managers, employees, and IT personnel grasp this technology. We did the thematic analysis to add to the existing literature. The study discovered through its survey that this technology is relatively new in Oman. Here is where the role of government will step in, by teaching this technology in finance-related specialties and organizing seminars and workshops for financial industry professionals.
KEYWORDS:*Blockchain, Blockchain Technology, Accounting, Finance, Banking, Banking Sector in Oman*

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I. INTRODUCTION:

Technology has become an indispensable part of our daily lives. Robust innovations to make the world a better place to live and to satisfy human needs and desires are common these days. Individuals, businesses, governments, and societies all over the world are leveraging the use of technology to operate and achieve desired outcomes. In recent years, technological advancement via the fourth industrial revolution, or Industry 4.0, has altered the landscape of the entire business ecosystem. Among all, blockchain is one of the most important and innovative technologies to emerge in recent years (Appelbaum, et al., 2022; Pal, et al., 2021; Peters and Panayi 2016).

1.1 Blockchain:

Blockchain, the decentralized digital database of a decentralized peer-to-peer network, keeps track of all transactions. On a blockchain, there will be no centralized record of transactions; rather, they will be verified by anonymous network participants and broadcast publicly across all distributed networks (Chen, et. al., 2021). Every transaction is recorded and permanently linked together in a time-stamped chain. According to Basu and Gabbay (2021); Hooper and Holtbrügge (2020), a network's recorded transactions form a chain of blocks known as the blockchain. According to Yaga et al., (2019) because a blockchain has no central authority, it is tamper-proof and tamper-resistant.

Therefore, blockchain can be summarised as a chain of blocks that store information using digital signatures in a decentralized and distributed network. It is a decentralized database storage system that is

difficult to use fraudulently and is dependable. The goal of this technology is to reduce trading costs, speed up transaction settlement, improve transaction auditability, reduce fraud risk, and increase monitoring effectiveness (Swan, 2017). Blockchain technology is used in a variety of financial applications, including Bitcoin, smart contracts, and Hyperledger. Blockchain technology has a wide range of applications.

Fig. 1.1 Chain of Blocks (compiled by authors)

Blockchain technology is being researched and implemented in countries all over the world. It has been confirmed that Blockchain investment is concentrated in Western developed countries, with the United States leading the way. Blockchain technology has piqued the interest of the majority of major European countries. Toronto, Australia, Canada, and South Korea intend to use Blockchain technology to improve their systems, whereas Russia is wary of the technology. Blockchain has enticed many businesses to invest in it because of its open-source nature. Examples of project types include data security, cross-border payment, financial market transaction settlement and identity confirmation, trade finance, attack detection, cybersecurity, insurance, property registries, contractual agreements, real-time money transfer, smart contracts, and auctions.According to one source (Zhang, L.2020), the use of blockchain technology in cross-border payment has an enormous potential impact. Third, digital asset registries and administration: Blockchain technology can be used to record, transfer, and verify asset ownership (e.g., driver's licenses, contracts, passports, visas, medical records, and voter registration), as well as to maintain the integrity and authenticity of sensitive documents or records. Blockchain is becoming more popular in the accounting profession. Blockchain, according to (Deloitte 2016), will boost corporate and individual collaboration, business process and data transparency, and, eventually, the economy's productivity and sustainability.

1.2 Accounting and Finance

Accounting and finance are two of the most important functions in any business because they allow companies to keep accurate financial records for specific times and purposes while also allocating scarce financial resources. Accounting data users can use accounting information to make decisions. Users of accounting information may face some challenges in a variety of accounting fields (Crookes and Conway, 2018). For example, it is difficult to measure its efficiency and effectiveness because it does not include non-financial transactions.Accounting services including financial reporting can be expensive for small businesses. The reliability, transparencyand integrity of the financial reporting process allows investors to make good decisions (Bzeouich, et al., 2019; Zainudin and Hashim, 2016; Gilmore-Allen, 2015).Finance is a broad term that encompasses the activities associated with banking, investing, money, and the capital market (Behl, et al., 2019; Pal, et al., 2019; Tiwari, 2015; Sontakke and Tiwari, 2013). Finance primarily refers to the distribution of money and the method of obtaining needed funds.

Accounting and finance, as we all know, are inextricably linked and share many characteristics. However, the most basic difference is that Finance is concerned with money management, whereas accounting is concerned with recording and reporting financial transactions (McLaney, E., and Atrill, 2016).

1.3 Blockchain in Accounting and Finance

Blockchain is a new cutting-edge accounting technology that is widely regarded as the accounting industry's future (Önkan and Arikan, 2022). It's a decentralized ledger system that stores all relevant information for every completed transaction (Garcia Bringas, et al, 2020; Liu, et al., 2019).

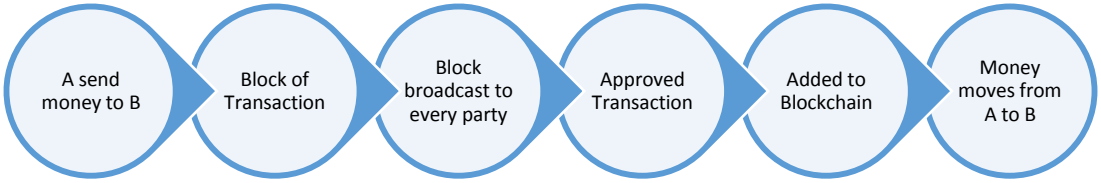

Fig.1.2: Money Transaction on Blockchain (compiled by authors)

The process of transferring money via blockchain is depicted in Figure 1.2. When one person wishes to send money to another, the transaction is first recorded in a block. Then, block a large number of people from receiving broadcasts. The transaction should then be approved by each party. The blockchain is then updated as transactions are made. The money transfer was finally finished.

Blockchain technology is secure, immutable, and permanent (Hameed, et al., 2022; Pal, et al., 2021). Furthermore, Blockchain can improve the accounting profession by lowering the costs of maintaining and reconciling ledgers while also providing a high level of transparency into asset ownership and history (Abdennadher et al., 2021). Any party with access to the ledger can view all previous transactions, allowing the blockchain to self-audit (Eltweri, 2020). Furthermore, Blockchain has the potential to free up accounting firms' time to focus on planning and valuation rather than recordkeeping. All of the above blockchain accounting and finance applications and benefits can assist financial firms in increasing their efficiency (Dahdal, et al., 2022; Abdennadher et al., 2021; Pilkington, 2016).Accounting systems, in particular, are transitioning from the physical to the digital realm. Blockchain technology is almost certainly going to play a significant role in this transition (Bizarro et al., 2019). However, the advantages of blockchain may jeopardize the careers of accountants in areas such as bookkeeping and reconciliation. Furthermore, it is still in the experimental stage and faces some difficulties, such as governmental regulations, limited data processing capacity, and data confidentiality. In a similar manner, considering its potential, the technology is expected to transform the banking, insurance, trade finance, capital market, and entire financial service space. (Younus and Abumandil, 2022; Benedetti, et al., 2020; Ali et al., 2020).

II. LITERATURE REVIEW AND CONCEPTUAL FRAMEWORK

Based on the available literature, several studies have mentioned the meaning, features, potentials implementation challenges of blockchain broadly in the area of accounting, auditing, banking, finance, and insurance. According to (Liu et al., 2019), blockchain is a new method of recording, processing, and storing business transactions and data. It is powerful enough to alter the accounting profession's blueprint. (Dai and Vasarhelyi, 2017) investigated how blockchain can aid in the creation of a real-time, verifiable, and transparent accounting system. Accounting will become more dependable and refined as a result of these features. According to (Kwilinski, 2019), the use of blockchain technology at this stage of economic development is critical for accounting due to its speed and security in document management. The ability of management to commit accounting fraud is hampered by an ineffective internal control system, which can be avoided by implementing blockchain technology (Rückeshäuser, N., 2017). This technology, like other technologies, is not without challenges. (Coyne and McMickle 2017) discovered that the blockchain's security benefits aren't fully available or reliable in accounting. Because it is still in development, a more refined version is expected soon.

Further, Blockchain is expected to impact auditing processes and performance (Gauthier and Brender 2021). The number of organizations that use or intend to use blockchain technology in their business processes is growing. There is currently no auditing standard that covers blockchain, and the auditors encountered some challenges when auditing enterprises that have implemented blockchain systems. The auditors emphasized the importance of ensuring the trustworthiness and credibility of the data stored in the blockchain.

Blockchain has been researched in a variety of financial fields. Decentralized business can be built using Blockchain technology, according to Chen and Bellavitis (2020). A key benefit of blockchain technology for the financial industry is the potential for borderless and transparent decentralized financial services. Decentralized finance has its advantages, disadvantages, and restrictions. It is the central financial intermediary that controls financial transactions. Intermediaries help to streamline financial transactions. But financial systems can control economic operations. In a decentralized financial system, peer-to-peer networks move funds instead of financial institutions. A decentralized system can develop network effects and minimize transaction costs without monopolistic charges. (Catalini&Gans, 2020). Blockchain is a good alternative way to get better organized for modern finance (Varma, 2019). Currently, banks are trusted mediators in the financial system. In general, these central hubs are expected to have strong management and financial backing, making failure exceedingly unlikely. Hacking into huge financial firms' computers can also destroy trust. Decentralized systems like blockchain grow more enticing as faith in central finance centers dwindles. To all of this, Blockchain technology is still in its infancy. According to (Casey et al., 2018), Blockchain confronts several technical, commercial, and regulatory hurdles to overcome. However, it has the ability to change the financial sector significantly. So, performance, expansion, privacy, security, and other issues must be addressed. By contributing in continuous software development, expanding basic computing capacity, and enhancing the communications network. Globally, many developers are working to improve and develop blockchain. With time, the problems of blockchain will be overcome, increasing optimism. The study also identified several decentralized financing constraints and could not realize its full potential due to obstacles. Fraud and the proliferation of unlawful financial innovations are examples. As a result, a well-organized system must foster legitimate innovation. Cryptocurrencies can undermine stability. Stable coins connected to fiat currencies can solve this problem.

Further, a study indicates certain risks, including Smart Contract Execution: when the deterministic and decentralized system is doing its work, something may go wrong, such as coding errors. When these errors occur, they may lead to the creation of vulnerabilities, which can allow an attacker to steal the smart contract's funds or render the system unusable (Schär, 2021).

In the banking space, according to Albeshr and Nobanee (2020), Blockchains may improve and change banks' payment clearing and credit information systems. A "multi-center, weakly intermediated" arrangement improves banking efficiency. Although blockchains are permissionless and self-governing, the questions of legislation and implementation remain unresolved. The outcome is a push for a "regulatory sandbox" and industry norms. Further technology is contributing to the rise of big data in the banking industry (Hassani et al. 2018). However, there is a research and development gap in blockchain-enabled big data in banking, which may limit its use and expansion. For the system to become more efficient, it must solve two fundamental flaws: low transaction per block and excessive computing power. These difficulties addressed, adopting Bitcoin and incorporating blockchain technology into financial infrastructures may allow for quicker resolution of disputes. According to Shoker (2021), global banking and financial regulation has become more stringent. Many people believe that governments should support freedom and transparency by allowing citizens to actively participate and improve the system.

With reference to the insurance sector, Blockchain's tamper-resistance gives consumers confidence. Decentralization also allows users to communicate without the intervention of third parties. As compared to the internet in the early 1990s, (Kar and Navin, 2021) the research finds that considerably more work is required to get this technology generally adopted by the industry. Various factors have been attributed. For starters, scalability is gone. The technology may become congested as the transaction volume increases. Another issue is that even if a corporation uses the technology now, it may find that when the number of stakeholders expands, the existing blockchain infrastructure is no longer appropriate. (Hoffmann 2020) states that Swiss policyholders favor insurance quality and convenience of use. Claims adjusters must analyze a complaint's legality for basic insurance products. When the parties cannot agree on how the terms should be construed, the consumer is likely to lose out. According to scalability studies, parameters used in blockchain generation should be picked carefully because they affect network latency. Currently, unsecured, fine-grained access control can safeguard it. This technique allows each smart contract to have its own set of endorsement peers, which may be extended to each transaction (Raikwar et al., 2018). Blockchain utilized in smart contracts for natural catastrophe insurance plays an essential role with unexplored potential (Pagano et al., 2019). It is possible that blockchain and smart contracts could significantly impact the usage of insurance in disaster risk reduction projects, enhancing natural catastrophe resilience. Using a blockchain network would speed up insurance claims, minimize administrative expenses, and allow for real-time policy premium creation.

According to the review of the literature, scholars have separately investigated the area of blockchain in accounting, auditing, banking, insurance, and finance. However, there is a scarcity of research that takes all of these important fields into account. Furthermore, because blockchain is a new technology, very few studies have been conducted to qualitatively analyze the opinions of experts in the blockchain, accounting, and finance fields. Furthermore, major studies are from developed and emerging economies, with little contribution from Gulf nations. This study will attempt to fill these gaps. To, the best of the authors' knowledge, this is the first study exploring the status of blockchain technology in the banking sector of Oman. Based on the review of the literature we propose the following framework highlighting the applications and challenges of blockchain implementation in different facets of accounting and finance.

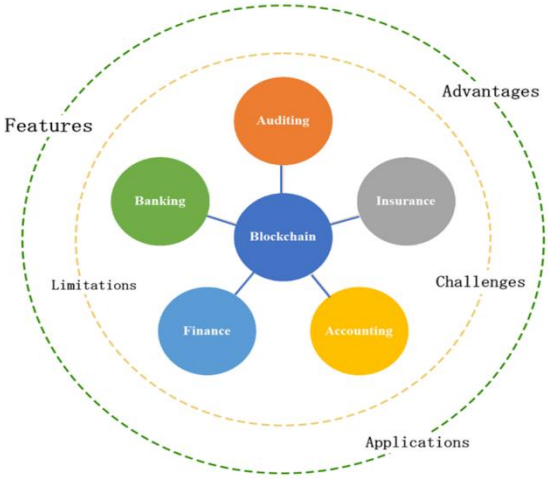

Figure 2.1: Blockchain technology in accounting and finance (Compiled by Authors)

Banking, insurance, and finance are critical decision-making responsibilities for all types of organizations. Accounting and auditing, on the other hand, are regulatory compliance functions. Based on our analysis of the literature, we can conclude that blockchain technology is extensively finding applications in all of these activities. Along with the benefits, there are certain drawbacks to implementing blockchain in the aforementioned industries. We hope to highlight the potential applications as well as the challenges perceived by bankers in Oman through our research. The following research issues are intended to be addressed by this study.

*R1.*What are the possible applications of blockchain technology on various functions of accounting and finance?

*R2.*What are the benefits of using blockchain technology in accounting and finance with reference to the banking sector?

*R3.*What are the challenges associated with the use of blockchain technology?

*R4.*What is the status of blockchain in the banking sector in the Sultanate of Oman?

III. METHODOLOGY

To address the research questions, we refer to the available literature on blockchain on one hand and practitioners' views on the technology on the other (Saheb and Mamaghani 2021; Pal *et al*., 2021,). The following paragraphs will discuss the types of research, characteristics of research respondents, tools, data collection, and data handling process.

3.1 Research Type

Our research intends to establish an Oman blockchain financial framework. This study used a qualitative approach to get feedback from Oman's bankers (Abdennadher et al., 2021). The study will look into the future of blockchain technology in Oman's banks. The survey started with demographics and ended with blockchain questions.

3.2 Study Subjects

This study uses nonprobability convenience sampling. Nonprobability sampling is based on the researcher's opinion rather than random selection. Convenience sampling is a way of taking samples from a population that is easily accessible. The only need for this sampling approach is that participants be available. People who fill out a questionnaire or take a survey for a researcher to collect and analyze data. The study's purpose determines who is chosen to participate. The interviewee can leave at any time. The survey included employees, managers, and IT personnel from Oman's banks. Age, education, and banking experience varied among respondents (Garg, et al., 2021).A sample of Omani bank employees was chosen for this study to learn their views on blockchain technology and its applicability in Oman's banking sector.

3.3 Research Tools

A questionnaire is a set of questions created by the researcher and sent to participants. A questionnaire offers various advantages, including quick data collection, participant privacy assurance, and inexpensive implementation costs. This tool was used since the investigation requires different bankers' perspectives based on focused group interviews. A questionnaire was sent to interview bankers to learn their views on blockchain technology. The questionnaire was sent online for convenience and time constraints. This study's research instrument is both primary (direct from the respondents) and secondary (from an academic database).

3.4 Data Collection:

In focused group interviews, a semi-structured questionnaire was used to obtain primary data on bank managers' impressions about blockchain technology. This study respects research ethical regulations. Some of it involves knowing the study's purpose, getting informed consent from participants before commencing the study, and respecting their decision not to participate. The free-will chance to offer study data. No one was forced to take part. No names or personal details are shown to protect participant privacy. We ensured anonymity and confidentiality and informed participants that their data would be used solely for research reasons. Getting suitable persons was one of our study challenges. We had many attendees, but not all were conversant with blockchain technology. To ensure diversity, we gathered data from a wide range of people. Time is another issue, as people in the organization are often busy, making interviews hard, and we must perform a questionnaire by email. So, participants can answer the questionnaire whenever they choose, without any pressure.

3.5 Data Treatment

Regarding the article evaluation, we read various articles to learn about the blockchain. The data gathered from the articles is summarized and written in a way that the reader can understand.

To decrease the odds of omission, we summarized the data and transcribed each of the questionnaire's pages.

The survey analyzes the raw data collected from the Questionnaire to draw beneficial insights. We use thematic analysis to understand bankers' perceptions of the blockchain (Abdennadher et al., 2021; Neuendorf, 2018). This will help practitioners evaluate the features, benefits, uses, and problems of blockchain technology in accounting and finance.

IV. ANALYSIS:

The section included the analysis, presentation, and interpretation of the findings which resulted from the study.

4.1 Primary Data: Results of Focused Group Interviews & Thematic Analysis

As a part of primary data analysis, the responses received through focused group interviews were analyzed. The semi-structured questionnaire started with demographic and employment profile questions and ended with blockchain-related questions. The questionnaire was distributed to a total of 75 bankers holding managerial positions, only 22 of the 75 bankers who received the questionnaire completed it, and the results of this study were based on their responses.

4.2.1 Demographic and Employment Profile

The purpose of the first section of the questionnaire is to identify the demographic and employment profile of the respondents. Males made up 60.9 percent of the participants, while females made up 39.1 percent. The majority of the participants, 60.9 percent, were between the ages of 26 and 35, and 21% were between the age of 36 and 45. Regarding the academic qualifications, the majority of participants have a Diploma/Advanced Diploma and a bachelor's degree; however, some participants have Master and High School certificates. When it comes to years of working experience in Banking, Finance, Accounting, and IT, the findings show a wide range of numbers, although the majority have less than 5 years of experience.

	Gender	**Age**	**Academic Qualification**	**Department**	**Position**	**Years of Experience**
R1	Male	Below 25	Diploma/Advanced Diploma	Accounting Department	Accounts Executive	Less than 5 years
R2	Male	26-35 years	Bachelor’s degree	Trade Finance	Senior Officer	Less than 5 years
R3	Male	Below 25	High school	Operations	Executive	Less than 5 years
R4	Female	26-35 years	Bachelor’s degree	Treasury Back Office	Senior Officer	Less than 5 years
R5	Female	26-35 years	Bachelor’s degree	Branch	Personal Banker	Less than 5 years
R6	Female	Below 25	Bachelor’s degree	Treasury	Dealing	Less than 5 years
R7	Female	36-45 years	Bachelor’s degree	Finance	Head of MIS	More than 15 years
R8	Male	26-35 years	Diploma/Advanced Diploma	Privilege Banking	Business Development Manager	More than 10 years
R9	Male	26-35 years	Bachelor’s degree	Premier Segment	Assistant Manager	More than 5 years
R10	Male	26-35 years	Bachelor’s degree	Accounting	Accounts Executive	Less than 5 years
R11	Male	36-45 years	Bachelor’s degree	Marketing	Marketing Manager	More than 5 years
R12	Male	Above 46	Diploma/Advanced Diploma	Branch	Branch Manager	More than 15 years
R13	Male	36-45 years	High school	Security	Quality of Best Service	Less than 5 years
R14	Female	26-35 years	Bachelor’s degree	Call Center	Phone Banker	More than 5 years
R15	Female	26-35 years	Masters	Branch	Branch Manager	More than 10 years
R16	Male	26-35 years	Diploma/Advanced Diploma	Finance	Head: Operations	More than 10 years
R17	Male	26-35 years	Diploma/Advanced Diploma	Branch	Personal Banker	More than 5 years
R18	Female	36-45 years	Diploma/Advanced Diploma	Priority Banking	Unit Head	More than 15 years
R19	Female	36-45 years	Diploma/Advanced Diploma	Process Loan	Officer	More than 10 years
R20	Male	26-35 years	Bachelor’s degree	Risk Management	Security System	Less than 5 years
R21	Male	26-35 years	Bachelor’s degree	Customer Service	Banker	Less than 5 years
R22	Female	26-35 years	Bachelor’s degree	Trade Finance	Assistant Manager	More than 10 years

Table 4.1**:** Demographic and employment profile of the participants.

4.2.2 Thematic Analysis

The participants mentioned some of the technologies used by the banks other than the blockchain, such as Bank Muscat software, Trade innovation (TI+), Traditional financial technology such as ACH/RTGS/SWIFT, and Finacle - IBPS. The table below performs the thematic analysis (Abdennadher*et al.,* 2021) of the responses from the practitioners along with supportive evidence from academic scholars in the last column. The analysis classifies the responses based on themes including features, applications, advantages, and limitations associated with blockchain in the accounting and financial transactions of banks.

Themes	Sub-themes	Description	References to the scholars
Features	Better Security	If any of the nodes do not agree on a transaction, the transaction cannot be carried out.	(Zamani, et al., 2020; Stephen and Alex,2018)
	Decentralized	A blockchain is a distributed ledger that uses cryptographic techniques and economic incentives to maintain the integrity and authenticity of each transaction.	(Pal, et al., 2021; De Filippi, 2016).
	Faster Settlement	blockchain technology speeds up the settlement by eliminating a fragmented post-trade infrastructure and establishing a more flexible settlement cycle.	(Appelbaum, et al., 2022;Hassani, et al., 2018)
Applications	Elimination of intermediaries using blockchain in banks	The blockchain is decentralized system and the transaction happened immediately.	(Omar et al., 2021; Harris and Wonglimpiyarat, 2019)
Advantages	Low cost	Blockchain technology help to reduce the cost of cross-border payments.	(Garg, et al., 2021; Chen and Bellavitis 2020)
	Speed and the ease of money transfer	Blockchain technology provides faster transfers with less steps.	(Shin, 2019)
	Escalated Security	Using of blockchain system can provide high level of security because of storing all data in one central database.	(Park and Park, 2017)
Limitations	Lack of awareness	Unfamiliarity with blockchain technology. and organizations doesn't use it.	(Bhaskar, et al., 2020; Kramer, 2019; Cocco et al., 2017)
	Cost	Implementing a new technology training staff for it is costly.	
	Government regulatory	Approvals from Central Bank of Oman (CBO).	
	Security	Excess security and lack of flexibility and possibility of hacking.	

Table 4.2. Thematic Analysis of the responses

Features

Answers to the question: "in your opinion, what are the essential features of blockchain technology? " The respondents agreed on three essential features of blockchain which are better security, decentralized and faster settlement.

Better security. 8 of the participants (R1, R4, R5, R8, R14, R15, R16, R17) say that better security is one of the main features of the blockchain. To provide users with security, all blockchains rely on safe software code to enable peer-to-peer transactions using digital money. Each block in the blockchain should have a hash value. These blocks are linked together by the preceding hash. If an attacker comes to correct the data, the hash will be altered. It will have an impact on the entire chain. As a result, it will improve the security of sensitive data or information. Moreover, Blockchain technology is a decentralized system. It will primarily facilitate peer-to-peer communication. As a result, computers are termed nodes in a network. The distributed ledger should be replicated over thousands of nodes. This should be used to validate the transaction. If any of the nodes do not agree on a transaction, the transaction cannot be carried out. As a result, it will be canceled. This will safeguard against a fraudulent transaction (Stephen and Alex, 2018).

Decentralized. R2, R7, R9, R22 choose decentralization as the main feature of blockchain. A blockchain is a distributed ledger that uses cryptographic techniques and economic incentives to maintain the integrity and

authenticity of each transaction. All nodes linked to the network share a copy of the blockchain, which contains the history of all legitimate transactions. Each transaction is recorded in a 'block,' which is progressively added to the preceding block of transactions. Once information has been stored on the blockchain, it cannot be changed or removed (De Filippi,., 2016).

Faster settlement. the majority of the participate says the blockchain technology speed up the settlement by eliminating a fragmented post-trade infrastructure and establishing a more flexible settlement cycle. Blockchain clearing and settlement might take place in near-real time. The adoption of blockchain technology can help banks shorten the time to settlement by allowing people and organizations to deal directly and access the same record of transactions that is updated by consensus and made immutable through cryptography (Hassani et al., 2018).

Applications

The response to the ninth question, "In your opinion, what are the various applications of blockchain in accounting and finance?" was given by an assistant manager who works in one of Oman's leading banks, who stated that it is similar to present bank processes but eliminates intermediary banks/institutions to continue the process, which is direct from client to bank and vice versa. Because the transaction will take place instantly, it will also reduce the money and time spent. Blockchain is decentralized and secure, that's why it can be used to record data and make transactions. As a result, blockchain can be used to replace bank accounts by enabling safe transactions, reduced-cost services, and decentralized data. It allows people to easily get loans and raise funding for projects. Blockchain is on the rise to create a decentralized digital economy that is efficient, secure, and inexpensive, with the potential to replace banks and financial institutions. Because it serves as a medium of exchange, and a store of value for money, it covers all aspects of banking.

Advantages

The finding of our research shows the advantages of using the blockchain in the banking sector. According to the participants of our research, some of the respondents mentioned the functional benefits of using blockchain.

Low cost. R8,Business Development Manager is one of the participants who mentioned the reducing cost transaction fees, as we know the payment networks of Centralized systems like PayPal, Visa, and SWIFT which facilitate the online and offline transferring services. Moreover, those Centralized systems usually charge high fees for giving services by them, especially for the payments cross-border. The services cost of the payment is still high cost, even after the advent of the internet and reduction of the costs of a wide range of services. However, by using payment networks of Decentralized systems, it is providing instant and global payments at a low cost, and the problems related to the services of traditional payment are solved. So, due to low-cost transaction fees, any users can significantly reduce their costs and which will reflect to lower of losing money and more saving and profitability. The services of the payment of decentralized system depend on blockchain technology and cryptocurrencies which are considered global in nature, and cross-border payments is faster and more inexpensive (Chen and Bellavitis, 2020).

Blockchain technology costs depend on the number of operating costs like the cost of transaction, energy and storage costs, and cost of benefits of technical aspects like privacy, transparency, security, trust, and faster transactions (Osmani et al,2020).

Speed and the ease of money transfer. On the side of the speed and the ease of money transfer, five participants agreed that blockchain technology is faster and easy for transferring. Nowadays, everything become faster due to modern technologies, even in dealing with money. Financial technologies made a new shift for more innovation in the sector of finance. While there is still a wide range of banking providing traditional services. So, blockchain technology provides innovative, secured, and faster transfers with fewer costs (Shin, 2019).

Escalated security. R11, Marketing Manager, gives a point about Escalated Security. To support this academic scholar's Park and Park (2017) mentioned the use of blockchain system can provide a high level of security because of storing all data in one central database which that can avoid attacks damage on the database. In yet another contribution, Wang et al., (2019), found that the distribution of the blockchain system raises the visibility and transparency of the data and its immutable ledger which ensures the single version of the truth. So, that helps to build the trust of better security.

Limitations

Lack of awareness. In response to the question: "Today, technology is an important part of our life, and blockchain is one of the most promising technologies in finance. Do you know about Blockchain technology?", Some of the participants replied with "No", showing a lack of familiarity with blockchain technology. Lack of awareness is one of the biggest limitations we found regarding blockchain technology. Because it is a new technology, the majority of the participants did not study or received training on the subject, and they have limited information. "This is the first time I have heard the phrase blockchain." Another reason for the lack of awareness about blockchain is because organizations are not currently applying it: "My organization doesn't use

it". Because blockchain is still a new technology, the financial sector is yet to explore and implement the technology in organizational settings. We believe that as the public becomes more aware of blockchain technology, bankers' opinions on the technology will change.

Cost. The efficiency that blockchain technology provides comes at a high cost. According to a business development manager of one of Oman's biggest banks, implementing new technology and training employees on it can be costly, which is considered a limitation of implementing blockchain technology in the banking sector. As a result, the decision to use blockchain technology must be carefully reviewed.

Government regulatory.Because blockchain is a decentralized system, there is no single authority in charge of enforcing the law in the system. It has always been difficult for government regulators to keep up with technology developments. As it is seen as a limitation of blockchain technology, the marketing manager of one of Oman's biggest banks stated: "Approvals perhaps from CBO", are the main reason for not implementing blockchain technology in Oman.

Another participant R9; Assistant Manager stated: "regulatory might not be accepting it".

Security. The security of blockchain technology was a concern by many participants. Some of the participants believe that excess security and lack of flexibility are the limitations of blockchain technology. It does not allow for errors to be corrected. When a transaction is recorded on the blockchain system, it is difficult for users to modify or cancel it.

On the other hand, other participants believe that lack of security is the limitation of blockchain technology. Because blockchain is a decentralized system with no authority enforcing laws, it can be difficult to control. R19 and R21 stated that lack of security and the possibility of hacking are the biggest threats in adopting this technology.

V. RESULTS AND DISCUSSION:

In this section, we will present the findings in a form of discussion while keeping in mind the research questions and objectives.

R1. What are the possible applications of blockchain technology on various functions of accounting and finance?

The study found that there are many applications of blockchain technology in various fields of accounting and finance. Mainly, the blockchain was founded for the trading and transfer of digital currency or we can say the cryptocurrency. Blockchain technology is used in a variety of financial applications, including Bitcoin, smart contracts, and Hyperledger. Blockchain technology can be applied to a wide range of applications other than financial uses. As noted by this research, there is a trading system based on the blockchain and there are different payment systems like payment of e-commerce transactions, payment clearing, and cross-border payment. Blockchain supports the management of distribution and circulation of rights of the asset. Moreover, the blockchain enhances the liquidity of financial instruments and improves the efficiency of financial services. With regard to supply chain finance, the blockchain application supports the exchange of information between suppliers, enterprises, banks, and the organizations of finance. On the side of cross-border payment, the blockchain application enables international banks, enterprises, or individuals to make conduct peer-to-peer financial transactions.

R2. What are the benefits of using blockchain technology in accounting and finance with reference to the banking sector?

This research discovers the various use of blockchain in the banking sector. blockchain technology provides innovative, more secured, and faster transfers with reduced costs. Applying blockchain technology can assist banks to reduce the settlement time by allowing individuals and entities to trade directly and use the same record of transactions that is modified by the majority and made immutable by cryptography.

The current transferring and payment of money system provided by third-party charging high transfer fees especially for the payment of cross broader. However, using a payment network of a decentralized system provide less transaction cost, so that will result in low transfer fees. The clients will reduce their costs as transaction fees are lower and get more chance of saving. So, the payment services of a decentralized system rely on blockchain technology, and cross-border transfers are faster and less expensive. Furthermore, the blockchain technology system offers a higher level of security than the current system. due to putting away all information in one central database set which can stay away from assaults harm on the data set. Furthermore, the sent record should be copied by a large number of nodes. This should be used to authorize the transaction. The exchange cannot take place if any of the nodes are in disagreement. As a result, it will be removed.

R3. What are the challenges associated with the use of blockchain technology?

This study found that using blockchain in the banking sector has some limitations. The cost of implementing blockchain technology in the banking sector is high, which requires increasing employee knowledge of the technology and conducting workshops to professionally impart technology education. Furthermore, support from regulators and government agencies is expected to keep up with technological advancements in the business industry. This technology lacks the flexibility to correct errors, and the risk of hacking and no government rules applying to it is also a concern. We believe that as people get more familiar with blockchain technology and it becomes more widely used, it will be able to overcome many of the challenges that it now faces.

R4. What is the status of blockchain in the banking sector in Oman?

The study determined through its survey that this technology is relatively new in Oman. Some of the respondents were unfamiliar with the term blockchain and its applications, showing that it is still in its early phases, with a long way to go before we see blockchain implementation by the majority of the companies. Furthermore, one of the reasons why the potential of technology has not been completely realized in Oman is that there is a lack of literacy about technology, which is not covered in school or university curricula. Here is where regulators, firms, and educational institutions, as well as the government, will come into play, by teaching this technology in finance-related specializations and arranging seminars and workshops for financial industry personnel. Realizing the promise of the technology, banks such as Bank Dhofar have just joined the RippleNet, which employs blockchain technology, making it the first bank in the country to do so and joining over 100 other financial institutions across the world. This technology allows for instant transactions as well as cross-border transactions. As a result of its use, transaction efficiency and speed have increased, while cost and time have decreased.

VI. CONTRIBUTION AND IMPLICATIONS OF THE STUDY:

The study contributes to the existing literature on blockchain in Oman using an exploratory and qualitative approach. Using focused group interviews top-level executives working in banks were interviewed and their opinion has been accounted for in dealing with blockchain technology. The technology is likely to reduce costs for businesses and enhance the value for their stakeholders.Dealing with firms all across the world will be easier if we continue to improve. The results of this study will be an immense help to managers, companies, and governments. Considering its immense potential, the companies can conduct workshops to professionally teach employees about blockchain technology to increase their knowledge of it. When the employees have more knowledge about the technology, the organization can implement that technology in its various works without any difficulty or fear that the employees don't know how to use that technology. Moreover, in the sultanate of Oman, teaching students in finance and related specializations about blockchain technology, to literate them about such emerging technologies. Nowadays, modern financial applications become more and more developing day by day, and the students are the youth of tomorrow. For the banking sector,the need for banks to rely on blockchain technology will help them reduce costs related to transfers, while also improving their operational efficiency. This research covered many of the advantages of implementing blockchain technology such as reducing costs because blockchain technology help to reduce the cost of cross-border payments. Escalated security can be improved by using a blockchain system that provides a high level of security because of storing all data in one central database. It also improves the speed and ease of money transfer because it provides faster transfers with fewer steps. Due to its decentralized nature, blockchain technology is a distributed ledger that combines cryptographic techniques and economic forces to maintain the authenticity and validity of each transaction. It also offers enhanced security because a transaction cannot be carried out if any of the peers do not agree on it. Finally, this is the first study on blockchain in accounting and finance in Oman which shall add value to the emerging scholars on the present status of the technology among the gulf countries.

VII. CONCLUSION AND FUTURE RESEARCH DIRECTIONS:

Blockchain technology is a potential new technology that has recently garnered a lot of research. This technology was developed to improve financial services. The blockchain is crucial to study since the globe is evolving towards better technology, making the world more adaptable and global. This study aimed to identify current developments in blockchain with reference to banks and demonstrate how blockchain technology may be used in accounting, finance, and banking. Based on focused group interviews, it also highlights how well bank managers, employees, and IT personnel grasp this technology. This research looks into the positives and drawbacks of blockchain technology. Articles from various sources were studied to learn more about the

blockchain, its applications, the benefits of using blockchain technology in accounting and finance, the challenges of using blockchain technology, and recent developments in the blockchain literature from scholars working in accounting and finance all over the world. The study looked into blockchain in accounting, auditing, finance, banking, and insurance. The findings were examined and presented in this paper. Reviewing the literature revealed that blockchain has been studied in accounting, auditing, banking, insurance, and finance. However, studies combining all of these crucial domains are rare. In this study, participants' replies were used to gather deep knowledge and a better grasp of the issue. Our study is exploratory, aiming to establish a blockchain-based banking infrastructure in Oman. The survey began with demographic and employment questions and ended with blockchain-related questions. This study used a nonprobability convenience sampling strategy based on the researcher's opinion rather than random selection. We did the thematic analysis to add to the existing banker literature. The study's findings will help scholars, bankers, and regulators understand the latest trends and developments in Oman's banking system. Future studies can be conducted exploring the benefits of blockchain literacy programs among the different stakeholders of a particular industry. Additionally, scholars can explore areas quantitatively the cost and benefits of blockchain implementations in the banking, finance, and insurance sector.

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