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Research Article

The Impact of Blockchain Technology on Accounting Processes and Financial Reporting in Thailand

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ABSTRACT

The application of blockchain technology in the field of accounting is essential as it guarantees increased transparency, security and reliability as well as shredding time and expenses of financial reporting. In this paper, the challenges have been discussed concerning the use of blockchain in Thailand's accounting industry, its benefits, and possibilities in the future. To achieve the stated research objectives, interpretivist approach, inductive reasoning, survey, descriptive analysis, and correlation analysis were used. The research also shows that the implementation of blockchain leads to increased efficiency of financial reporting in the organization, low incidence of fraud and increased regulation compliance. The numerical results portray strong correlation between blockchain acquaintance and its believed effect on transparency (r=8.83), reliability (r = 0.91), and willingness to adopt (r = 0.96). Moreover, challenges like high-cost hamper adoption shown by (r = 0.51). Traditional users resist change (r = -0.89) and there is high belief of blockchain replacement (r = 0.98). The findings reveal that there is the opportunity and need for more formalized approaches to transition from regular accounting methods to blockchain based systems to improve the effectiveness of financial professionals and strength of data.

Keywords: Blockchain technology, Accounting, Financial Reporting, Transparency, Machine learning

INTRODUCTION

Background of the research paper

Blockchain Technology's Effect on Financial Reporting and Accounting Procedures [1]. In Thailand, blocks and Technology are transforming accounting finance and reporting, helping to improve efficiency and security operations. This decentralised and unaltered record-keeping system facilitates enhanced credibility with the clients, speedy confirmation of regular transactions and minimised risk of fraud. However, there are some challenges such as standardization and privacy concerns, by the countries or companies before adopting the blocks and Technology. Blockchain has great applicability in the field of financial accounting yet, it is imperative to have an effective solution before large-scale adoption. Thailand is one of the countries that is already active in incorporating blockchain within its financial industry. The Bank of Thailand recently came up with guidelines for the use of blockchain in the provision of financial services to maintain effectiveness and elude any form of vulnerability [2]. Furthermore, the announcement of the Emergency Decree on Digital Asset Businesses B.E. 2561 (2018) is also done to control the usage of cryptocurrencies and digital tokens, so there is no risk of fraudulence in eco-friendly digital financial transactions [3]. It also aims to enhance the use of blockchain by working on the creation of the Central Bank Digital Currency (CBDC) for the payment system.

Research Questions

1. What are the key factors considerable to understand the blockchain technology adoption in Thai business?
2. Why does financial data need to be transparent and reliable as per the requirements of blockchain implementation in Thai business?
3. What are the challenges in implementing blockchain technology in different organisations?
4. What are the use cases of traditional and blockchain technology in the accounting system of Thai businesses?

Problem Statement

Blockchain technology is an important part of the transaction process in this digitally led world. In Thailand, this has been adopted by giant organisations and active transaction processes due to its security and privacy measures. The Bank of Thailand or BOT is developing guidelines to use it as an active transaction method in different organisations [4]. The organisations like Securities and Exchange Commission or SEC use Distributed Ledger Technology to provide tokens as currency for general citizens as a more secure financial transaction method. This is important to enhance security at the same time it uses automatic processes that need less human interaction. This also uses high-end privacy measures along with transparency in the whale process that are more easy to detect the anomalies. The audit system and transaction validation need these security measures as it also reduces the overall time of transactions. The other benefits it provides include multi-platform usage in Thai business. Despite these features and facilities the process also has drawbacks that are affecting the full implementation of blockchain in the accounting process and financial reporting in Thailand [5]. The main issue is decentralisation where there is no singular authority to monitor the tokens and it is hard to identify the personal transaction trails. The current accounting standard works through a central unit that controls all transactions and their usage, and regulations through a much simpler process. This is not present in blockchain technology due to its decentralised and complicated transaction process. The other issue it brings is improper infrastructure in organisations and financial institutions to fully use the potential of blockchain technologies. The widely acceptable practice of traditional transaction methods also created barriers to blockchain technology in Thailand [6]. The regulatory uncertainties and lack of expertise in this technology create challenges for wider adaptation despite different facilities. The study focuses on these problems by analysing them through different sources and how to solve these technological and operational issues.

OBJECTIVES

1. To understand the blockchain technologies that are adopted in Thai businesses.
2. To examine the effect of transparency and reliability of financial data in Thai brands because of blockchain technology.
3. To understand the challenges in the implementation of blockchain technology in the accounting systems of different organizations.
4. To compare the usage of traditional technologies and blockchain in the accounting systems of Thai businesses.

LITERATURE REVIEW

Introduction

The current research study discusses the multifaceted concerts and phenomena of the blockchain technology on financial institutions through developing relevant themes. Each theme is developed to address the research objectives by maintaining an objective point of view. The chapter offers a critical understanding of the main research context and the theme offers valuable insights to gain an effective understanding of blockchain technology. Different themes based on different aspects of blockchain implementation offer crucial insight that further guides future research on this very topic.

The adoption of blockchain technology in businesses

According to [7], the lack of willingness to embrace new technologies is one of the significant barriers to blockchain adaptation in business. Inadequate internal digital culture is another major barrier in this aspect. The article is relevant to the present research as it highlights the prevailing issues of blockchain technology adaptation such as the complexities of linking different payment systems in international trading. However, the current article lacks the implementation of blockchain technology in secured payment across the world. To sync regional and national payments blockchain technology implication is required to enhance security measures. For example, Singapore has implemented the real-time PayNow network which facilitated faster payment networks with several nations [8]. However, it further highlights that data security and privacy concerns, regulatory uncertainties, technological infeasibility, uncertain benefits and are major addressed barriers to blockchain implementation. The current article acknowledges its limitations in presenting mathematical quantification and subjective analysis. The study adds value to the existing body of literature by conducting significant research on understanding the impact of blockchain technology in real-time cross-border transactions.

According to [9], the use of blockchain technology in the business environment is continuously growing, and such trends can be attributed to the role played by the technology in matters concerning security, accountability, and effectiveness of business processes. Some of the nexus of blockchain include enterprise solutions, decentralized finance or DeFi, identity management, smart contracts, and supply chains. Private and consortium blockchains are now being adopted because their implementation into such processes as supply chain and identity validation result in improved security and cut costs. DeFi is a new kind of financial service that promotes everyone to be included in the financial system, eliminates middlemen, and accelerates transactions [10].

According to [11], in the current era, businesses implement several blockchain technologies to develop multiple factors effectively. For instance, the Financial Institutions Group of JPMorgan Chase Bank is the first recognised global bank to consider blockchain technology in the overall transaction process to regulate wholesale transactions. Project Carina is a revolutionizing initiative that utilises Q money which further operates Kasikornbank. The effective implementation of the Kasikornbank has resulted in a significant reduction in transaction times, provides the opportunity to make payments within 24 hours and enhances transaction monitoring and traceability. The current article is relevant to the current research as it offers a comprehensive understanding and knowledge regarding the successful implementation of blockchain technology in money transactions. However, the article lacks a detailed description of the benefits of blockchain technology usage in international transactions. Furthermore, Blockchain technology for digital identity is enhancing security systems and fighting the rising numbers of scams as well as enhancing trust among customers. Another major trend is the increasing popularity of smart contracts that significantly reduce the role of people in completing transactions thus driving down the legal expenses and cutting the costs of operations. In addition, blockchain is changing the face of the supply chain since the supply and tracking of merchandise can be done in real time while adhering to ethical and legal standards.

According to [12], The Siam Commercial Bank (SCB) has established an effective partnership with the SCB 10X to improve cross-border remittances and payments by incorporating effective blockchain technology. The project offers effective solutions associated with cross-border transactions making a significant milestone in financial innovation. It offers multiple benefits including minimised operational costs, utilisation of local currencies, minimised pre-funding between different parties and enhanced capital efficiency. Thus, Blockchain technology makes cross-border remittances more efficient [13]. Thus, the current article offers real-life examples of innovative traction solutions achieved through blockchain implementation making it relevant to the current research. Nevertheless, the current study fails to address the potential challenges or barriers that companies might face to handle financial innovation through blockchain.

According to [14], blockchain for the supply chain shows improvement in the supply chain transparency, security and efficiency. It also helps to enable real-time tracking, prevent the supply chain from fraud and facilitate smart contracts. In the accounting and financial reporting of Thailand, blockchain ensures accurate financial records by minimising errors. Blockchain holds the ability to create tamperproof records and also streamline financial transactions. It will directly facilitate the impact on the financial and accounting sector of Thailand by improving the audit process. The literature gap in this study demonstrates that the regulatory adapting in Thailand for the blockchain in accounting. The financial laws of Thailand and accounting standards needed to be researched by

aligning with the blockchain. It is necessary to explore the integration of blockchain with high financial regulations and its impact on the auditing practice.

The impact on transparency and reliability of financial data in companies

[15] stated that this study highlights that financial transactions are enhanced through traceability, security and transparency which is also helpful to shared ledger technology and highlighted blockchain. On the other hand, financial reporting helps to make reliable tools, preventing unauthorized alteration and data integrity for enlarged blockchain. Audit functions, automated compliance, and smart contracts reduce fraud risks due to blockchain's decentralized nature. The literature gap of this article indicates that the anti-counterfeiting measures and general financial security are primarily focused on the role of blockchain and existing research. On the other hand, especially in the Thai business environment, it is needed to accurately assess the financial reporting, regulatory compliance and accounting standards through a limited exploration which is also impacted directly [16]. Thai firms are facing implementation challenges because of real-world implementations and the lack of studies' insights. In addition, by reducing fraud and increasing accounting transparency, the blockchain that Thailand has implemented improves trust in financial reporting.

Blockchain also can revalue the audit and control in information systems. It illustrates that the blocks improve transparency and ensure the data integrity of the ledger. This article also describes the automation in the audit process through smart contracts and real-time transaction verifications. The audit is a critical process in financial accounting that requires analysis [17]. However, there are several regulatory challenges and adoption barriers for the blockchain in the audit process of Thailand [6]. Several research needs to be facilitated to analyse the compatibility within the financial laws of Thailand. It is necessary to analyse the impact of the blockchain in the text compliances and integration of the challenges within the blockchain.

As per the article of Infosys [18], blockchain improves the cyber security measurement in the financial sector with synergy. The article reflects that the blockchain provides a complete audit trail with transparency and the prevention of fraud. It is also effective in the case of decentralized lasers for eliminating the single point of failure. The study also highlights data security through cryptographic encryption which makes blockchain more powerful for the financial sector. The growing concern about financial fraud and cyber security in Thailand reflects the ability of the blockchain to secure financial records. It must be aligned with the modernised financial reporting and regulatory compliances of Thailand for long-term success. The literature gap in this study demonstrates that the blockchain is not integrated into the accounting standard of Thailand and regulatory frameworks. The Financial Institutions of Thailand and regulators must implement fraud prevention and their time auditing strategy with the help of blockchain [19].

According to [20], security is improved, cost is reduced and speed is enhanced through proven payment processing and highlighting the potential of blockchain. Furthermore, in financial transactions fraud is reduced, real-time settlements are enabled and intermediaries are decentralized through enlarged ledgers. Financial reporting is modernised by aligning with efficiency efforts enhanced security transactions and blockchain's ability. In addition, in the Thai financial markets, greater transparency fosters regulatory frameworks to prevent fraud and reduce reconciliation and technology business. The literature gap of this article indicates that the financial reporting frameworks help to broaden the accounting practices which also explore the integrated payment systems and blockchain's impact. However, the adopted obstacles, regulatory issues, and region-specific challenges are not well understood by local enterprises, particularly in Thailand's financial ecosystems. Automating compliance processes, enhanced transparency and immutable records ensure that revolutionised financial reporting, expanded adoption, enhanced government regulations and AI-driven auditing systems are integrated through the help of future development.

Challenges in implementing blockchain technology within the accounting systems of various organizations

[21] demonstrated that customer protection and financial stability are led by financial risks through payment process cryptocurrencies and expressed with the digital assets and regarding concerns. In addition, these risks are mitigated by the help of clear regulations, enlarged requirements and emphasised BOT. Towards Thailand's accounting the practical research indicates the lack of comprehensive approaches, technical applications and existing focuses. On the other hand, the literature gap also shows that the regulatory perspective is considered because of

reporting systems and financial systems. This article is relevant to the mentioned topic through the accounting process, using blockchain technology, and assessing direct influences with the BOT's cautions.

Efficiency, fosters tryst, transaction records, immutable transparency and provides security for enhanced customer experience and also blockchain technology. This article is also relevant to the topic with the help of the integrated improved data, real-time auditing, provided benefits, accounted systems and implemented blockchain. On the other hand, regulatory compliance needs to be addressed because of scalability issues, existing systems and integrated challenges. The literature gap of this article highlighted that long-term impacts remained limited through large-scale implementations, empirical research and accounting by the help of highlighted blockchain. On the other hand, auditing, financial reporting and revolution will help to integrate the blockchain matures [22].

According to the study of [23], the technology of blockchain can be more transparent in the case of accounts and systems. This helps to make the process of the accounts more transparent and secure. But with this, there are disadvantages like phishing attacks and Sybil attacks. It is reported in the study that this kind of attack does harm security and 51% of attacks are a greater threat to data security. Guidelines for incorporating this system in accounting may include several security layers and more secure procedures. The study also forecasts the integrity of the blockchain in accounting practices and the challenges it faces for legal compliance. The account's framework is quite constrained, and it is currently difficult to connect blockchain technology with older accounting software. The gap in this study is present as the study focuses more light on the benefit of blockchain in the accounting system but does not throw light on the overcoming of the challenges.

[24] suggested that blockchain can make the accounting system more robust and seamless but the barrier is the cost of the high development along with the integration. The requirement of skilled labor and additional regulation is posing another set of challenges in making blockchain utilisation more hectic. These threats possess a good number of uncertainties in the adoption of the blockchain. This specific study clarifies the difficulties in implementing blockchain technology that are directly impeding the accounting system. The organisation related to accounts must be aware of the cost of integration for the blockchain in the accounting system. The gaps in the study persist as the study showed the benefits of blockchain while neglecting the measures that can be taken to overcome the disadvantages along with legal compliance. The cases related to the real world are also absent in this study. Future research should focus more on the integration of the blockchain in the accounting system along with coming up with some cost-effective methods for more feasibility.

According to [25], the main challenge in the adoption of the blockchain in the accounting system is said to be the scarcity of the adoption of the technology. This particular lack is followed by the cost of implementing the system along with the issues of scalability. If there is not a cent amount of collaboration done toward the implementation of the blockchain then the full potential cannot be utilised. These particular drawbacks are the key reason as the accounting system is solely responsible for the accurate data input along with the utilisation of the real-time data throughout various stakeholders. This particular study has discussed the utilisation of the blockchain in the accounting system but did not shed light on the process and ways to overcome disadvantages. In the future, if the said advantages can be overcome then the audits can be more streamlined along with reducing the fraud related to the finances.

Summary

The study demonstrated how the blockchain's capacity to secure financial data is reflected in Thailand's growing concerns about financial fraud and cyber security. Guidelines for incorporating this system in accounting may include several security layers and more secure procedures. The study also forecasts the integrity of the blockchain in accounting practices and the challenges it faces for legal compliance. The framework of the account is merely limited, and the legacy accounting software is hard to integrate with the blockchain technologies as of now. Financial reporting is modernised by aligning with efficiency efforts enhanced security transactions and blockchain's ability.

METHODS

Research Philosophy

Research philosophy creates the outline of the research by analysing the research scope and helps in developing study output [26]. There are different types of research philosophy such as positivism, pragmatism, interpretivism and critical realism. Each of these philosophies has different measures and importance. This study uses interpretivist

philosophy as it helps in developing insights considering social aspects. Since, the study underpins aspects of understanding blockchain implementation issues, thus exploring social elements could be done by adopting this type of philosophy.

Research Approach

This study adopts an inductive approach out of three primary research approaches (inductive, deductive, and abductive) [27], which allows patterns and insights to emerge from the data without relying on preset assumptions. This method is suitable for exploring the impact of blockchain technology on accounting processes and financial reporting in Thailand, as it provides an in-depth understanding of real-world applications, challenges, and benefits based on participant experiences. The inductive approach emphasizes empirical findings derived from primary data analysis, offering valuable insights into how blockchain technology influences financial practices and reporting standards in Thai companies.

Data Collection

Data collection is essential in research as it provides critical information from various sources. This study uses both primary and secondary data collection methods [28]. Primary data was gathered through surveys using structured questionnaires with 10 targeted questions (Appendix 1). Initially, 43 employees from the companies in Thailand were approached, with 30 respondents ultimately participating. The purposive sampling method was used to recruit professionals, including Accountants (11), Auditors (8), Finance Managers (5), and Business Owners (6). Secondary qualitative data was sourced from academic databases such as Google Scholar, Sage, and Elsevier, focusing on publications from the past five years.

Data Analysis

Data analysis involves examining primary and secondary data using SPSS, NVivo tools and Excel spreadsheets which facilitates visual representation through statistical charts and graphs [29]. This study applied descriptive statistics and correlation analysis to interpret the collected data. Descriptive statistics included mean, median, mode, and standard deviation calculations, while Pearson's correlation coefficient (r) was used to assess relationships between variables such as familiarity with blockchain technology, acceptance, and usage preferences. The analysis also investigates the current state of blockchain technology in the Thai business environment, highlighting differences in participants' opinions and identifying key problem areas. This comprehensive approach provides precise, objective insights into how blockchain technology is perceived and adopted across various sectors.

Research Timeline

The research timeline provides the total time taken in research for a specific task [30]. This research took eight weeks to complete. The main tasks used for this study are the research preparation, data collection, duralumin and final result documentation. The research planning took two weeks and the secondary data collection took three weeks. The next task research question for the interview and survey took also three weeks to complete. Data analysis for this study took three weeks and the creation of the final report took two weeks in total.

Ethical Consideration

The ethical considerations used in studies are guidelines to collect and use different data. Ethical consideration helps the research by providing ethical and legal guidelines [31]. The data collected in this research are done by providing complete usage instructions to the participants and following complete guidelines when collecting secondary data. For collecting data from human participants, no sensitive information was collected. The participants were made aware of usage of the information, while the data was stored in password protected cloud storage.

EMPIRICAL RESULTS

Blockchain technology is an important innovation in the accounting and financial sectors. It offers improved transparency, security and efficiency. The findings of the study give valuable insights about the perception on the usage of blockchain technology in the accounting sector of Thailand.

Descriptive Statistics

The perception of the blockchain technology use from the respondents' opinions regarding accounting and financial shown as **Table 1** in the Descriptive Statistics. According to the data, Familiarity with Blockchain is moderate, on average 2. This indicates that most of the participants are familiar and to some extent, they are aware of the blockchain, as evidenced by standard deviation (0.83) to moderate variability in their responses. While there is the general familiarity, the skewness of zero effects the skewness from being too high in positive or negative values.

With regard to the perceived influence of blockchain on transparency, the mean score (1.8) indicates a very high confidence in a positive influence of blockchain on transparency in financial processes. The standard deviation (0.805) was relatively low indicating consensus between the respondents with a few exceptions. Nevertheless, the negative skewness of 0.815 suggests that some respondents are ambivalent to the point that blockchain can improve transparency. This variability is further observed in the range of responses (1 to 4), but the consensus is somewhat positive about blockchain's transparency benefits.

According to the section of the biggest challenge in adopting blockchain, the mean score 2.5667 indicates that cost and technical proficiency act as major blocks to blockchain adoption. The standard deviation of 1.1351 shows that organizations' perceptions are highly variable due to the various issues that need to be addressed, depending on such factors such as size, resources or technological capabilities. Furthermore, since the skewness was equal to 0.0510, which is almost zero and which is within the range of 1 to 4, the distribution of opinions in regards to the challenges is said to be balanced but the magnitude may vary depending on the respondents' organizations.

Determining the willingness of adopting blockchain, the mean scores 2.1667 is somewhat on the moderate side and willing to adopt blockchain technology for accounting. The standard deviation of 1.0854 confirms this as there is moderate variability in respondents' willingness to adopt blockchain. It has positive skewness of 0.5136, which indicates the overall acceptance tendency with some respondents being hesitant or having the mindset that they are not sure about the technology. This spectrum of responses is further reinforced by the range of 1 to 4, which indicates that some organizations are ready to use the blockchain, whereas others are skeptical and cautious about the adoption of blockchain.

Lastly, with regards to the possibility blockchain may replace traditional accounting methods, the mean score of 2.0333 indicates an average propensity of believing blockchain has potential in this capacity. With a standard deviation of 0.8899, it appears that there is a division of opinion, with some being very for the idea and others still somewhat undecided. The skewness value of 0.2465 is slight positive, meaning more respondents take the view that blockchain ought to replace traditional methods rather than not. Yet the scale of 1 to 4 illustrates that the vision on this probable replacement is not unanimous, and a quite big group of people is still in doubt about complete take-off of blockchain.

Table 1. Descriptive statistics

Familiarity with Blockchain		Can Blockchain Improve Transparency?		Biggest Challenge		Willingness to Adopt Blockchain		Will Blockchain Replace Traditional?	
Mean	2	Mean	1.8	Mean	2.5667	Mean	2.1667	Mean	2.0333
S.E.	0.1516	S.E.	0.1470	S.E.	0.2072	S.E.	0.1982	S.E.	0.1625
Median	2	Median	2	Median	2	Median	2	Median	2
Mode	2	Mode	2	Mode	2	Mode	2	Mode	2
S.D.	0.8305	S.D.	0.8052	S.D.	1.1351	S.D.	1.0854	S.D.	0.8899
Sample Variance	0.6897	Sample Variance	0.6483	Sample Variance	1.2885	Sample Variance	1.17812	Sample Variance	0.7919
Kurtosis	-1.5536	Kurtosis	0.3626	Kurtosis	-1.4124	Kurtosis	-0.9710	Kurtosis	-1.0229
Skewness	0	Skewness	0.8154	Skewness	0.0510	Skewness	0.5136	Skewness	0.2465
Range	2	Range	3	Range	3	Range	3	Range	3

Minimum	1	Minimum	1	Minimum	1	Minimum	1	Minimum	1
Maximum	3	Maximum	4	Maximum	4	Maximum	4	Maximum	4
Sum	60	Sum	54	Sum	77	Sum	65	Sum	61
Count	30	Count	30	Count	30	Count	30	Count	30
Role in Accounting		**Impact on Reliability**		**Current Financial Record System**		**Blockchain vs Traditional**		**Support Needed for Adoption**	
Mean	2.4	Mean	2	Mean	2.3333	Mean	2.1333	Mean	2.2
S.E.	0.2011	S.E.	0.1670	S.E.	0.2215	S.E.	0.1902	S.E.	0.2
Median	2	Median	2	Median	2	Median	2	Median	2
Mode	1	Mode	1	Mode	1	Mode	2	Mode	1
S.D.	1.1017	S.D.	0.9097	S.D.	1.2130	S.D.	1.0416	S.D.	1.0954
Sample Variance	1.2138	Sample Variance	0.8276	Sample Variance	1.4713	Sample Variance	1.0851	Sample Variance	1.2
Kurtosis	-1.2845	Kurtosis	-1.1076	Kurtosis	-1.4909	Kurtosis	-0.8710	Kurtosis	-1.1074
Skewness	0.1061	Skewness	0.2944	Skewness	0.2944	Skewness	0.5015	Skewness	0.4182
Range	3	Range	3	Range	3	Range	3	Range	3
Minimum	1	Minimum	1	Minimum	1	Minimum	1	Minimum	1
Maximum	4	Maximum	4	Maximum	4	Maximum	4	Maximum	4
Sum	72	Sum	60	Sum	70	Sum	64	Sum	66
Count	30	Count	30	Count	30	Count	30	Count	30

Source: self-made

Role in Accounting, Impact on Reliability, Current Financial Record System, Blockchain vs Traditional, and Support Needed for Adoption

Table 1 also shows the role of blockchain in accounting which indicates a medium agreement level with the mean value of 2.4. This means the majority of the respondents perceive blockchain to have a slightly positive effect on the role of accounting but not significantly. The standard error of 0.2011 suggests a small variability of the sample mean, and the estimate of the mean is not far from the actual sample mean. However, with the standard deviation standing at 1.1017, this shows that there is some amount of differences in terms of the respondents, as blockchain in accounting opinions vary significantly. The distribution of responses has a certain lack of curvature with the negative kurtosis value of -1.2845, meaning that there are fewer extreme positions as compared to the normal distribution. This goes along with the skewness being 0.1061 which is very close to zero hence fairs symmetric response for blockchain's role with a moderate tendency towards more positive views.

With regard to blockchain's influence on reliability of financial data, the neutral mean value of 2.0 points to a moderate level of influence according to the respondents. The magnitudes of standard error are 0.1670 which are not tallied with a large variation in the responses concerning reliability. In addition to this, the standard deviation of 0.9097 is also not very high, which implies that ideas of respondents are more aligned as regards the reliability of blockchain in the field of accounting. The negative kurtosis value of -1.1076 is also indicative of a distribution of fewer extreme opinions, with the positive skewness of 0.2944 hinting at a little tendency towards favourable impression towards blockchain's influence on reliability.

As concerns the current financial record system, the responses are not very good neither on the negative side but somewhat in the middle as respondents see it to be moderately effective with a mean score of 2.3333. This implies a way of generally agreeing that though the existing system works, there are nevertheless things that can be improved,

perhaps by blockchain. Standard error of 0.2215 depicts a slightly larger variation in the responses vis-à-vis the previous categories and the standard deviation figure of 1.2130 reaffirms that people are markedly divided as to the level of suitability of existing systems. With kurtosis at -1.4909 and skewness at 0.2944, it means that most respondents are slightly neutral but still, there are the ones who think that a lot needs to be improved possibly through introducing blockchain.

Mean value of 2.1333 for comparison of Blockchain and traditional accounting methods indicates that, on average, respondents view blockchain as a favorable contrast to traditional systems but not necessarily universally so. Having a standard error of 0.1902 and standard deviation of 1.0416, it is obvious that people have moderate disagreement on how much blockchain can replace traditional methods. The kurtosis value of -0.8710 indicates that the given responses are rather evenly spread out, the extreme opinions being less prevalent. The positive skewness of 0.5015 shows a preference towards the people who think blockchain is a better solution compared to the traditional systems but there is significant level of uncertainty or resistance among respondents.

With respect to support necessary for the adoption of blockchain, the overall mean score of 2.2 suggests that the respondents generally feel that moderate to significant level of support in the adoption of blockchain in accounting would be required. The standard error of 0.2 and the standard deviation of 1.0954 are indications of some variance in the responses with a combination of opinions as regards to the amount of Support required. The negative kurtosis (-1.1074) indicates that the responses are somewhat flat-the answers have less extreme views. The positive skewness of 0.4182 indicates a mild trend for respondents to somehow incline their opinions to the preference where there is a need for more support for adoption, although this is not a common consensus of all the respondents.

Thus, the descriptive statistics give rise to valuable insights on the mixed but generally positive sentiment of the respondents on the potential of blockchain technology regarding the accounting industry. Although its benefits in transparency and reliability are hardly questioned, the cost, technical expertise, and readiness to adopt associated with this new plan remain very challenging hurdles. The results also indicate that while blockchain is perceived to have the potential to replace traditional accounting systems, acceptance of blockchain full implementation will only occur if these challenges are overcome and organizational resistance is mitigated.

Correlation

The correlation matrix gives insights into the connection between different factors responsible for blockchain adoption in accounting. The perception of respondents towards blockchain is under the influence of familiarity as to build up a strong positive correlation between familiarity and willingness to use blockchain (0.96) and believe blockchain could replace traditional accounting systems (0.98). This means that the more people know about blockchain, the more they are likely to support the idea of its adoption and exploiting it as an alternative of the traditional methods. Moreover, from the perspectives of blockchain, in cases where someone is familiar with it, he/she usually knows it to improve transparency (0.83) and reliability (0.91), as with the other sectors, it may have some benefits on the sides of accounting **(Table 2)**.

Moderate correlations with familiarity (0.51) and willingness to adopt blockchain (0.51) reflect that the biggest challenges for the adoption of blockchain – high costs and the need of technical expertise – might be resolved with more adoption. The correlation between current financial record systems which are not able to support the blockchain belief in replacing traditional methods (-0.87) is negative, and is representative of the resistance that organizations who use traditional systems may have in transitioning to a blockchain system. Additionally, familiarity is negatively correlated with support needed for adoption (-0.34), which implies that the more familiar an individual is to blockchain, the less support he or she needs for adoption; and on the other hand, the less familiar an individual is to blockchain, the more support he or she needs.

To summarize, the matrix portrays that the most prominent factor with respect to blockchain adherence and supposed advantages over customary systems is expanding understanding of the blockchain. Though there are challenges to overcome, for example the cost and the technical proficiency some have to learn, but also the resistance from organisations that do not want to change and follow the traditional paths. The development of awareness and thus the use of tracking tools will require additional training and support among less familiar users.

Table 2. Correlation matrix

	Familiarity with Blockchain	Role in Accounting	Can Blockchain Improve Transparency?	Impact on Reliability	Biggest Challenge	Current Financial Record System	Willingness to Adopt Blockchain	Blockchain Vs Traditional	Will Blockchain Replace Traditional?	Support Needed for Adoption
Familiarity with Blockchain	1									
Role in Accounting	0.08	1								
Can Blockchain Improve Transparency?	0.83	-0.14	1							
Impact on Reliability	0.91	0.00	0.89	1						
Biggest Challenge	0.51	0.12	0.28	0.50	1					
Current Financial Record System	-0.89	0.03	-0.74	-0.78	-0.47	1				
Willingness to Adopt Blockchain	0.96	0.12	0.75	0.91	0.51	-0.86	1			
Blockchain vs Traditional	0.96	0.07	0.86	0.87	0.58	-0.86	0.86	1		
Will Blockchain Replace Traditional?	0.98	0.02	0.88	0.94	0.42	-0.87	0.96	0.93	1	
Support Needed for Adoption	-0.34	-0.33	-0.11	-0.17	-0.37	0.42	-0.35	-0.42	-0.25	1

Source: self-derived

Figure 1 shows a scatter plot with a linear regression line that represents the relationship between familiarity with blockchain and willingness to adopt blockchain. Along the x axis, the data shows the willingness to adopt blockchain, and on the y axis the data shows the familiarity with the blockchain technology. The scatter plot shows a clear positive linear correlation, whereas the willingness to adopt blockchain advances, the familiarity with the technology also extends. This figure is in line with the earlier conducted correlation analysis that revealed a very strong positive correlation between familiarity and intention of adopting blockchain (r = 0.96). Linear trend suggests that the respondents who are more familiar with the blockchain technology are more likely to use it in their organizations. Higher adoption willingness is reflected in the data points, and it is positively related to the familiarity of blockchain, as depicted on the regression line, further supporting the hypothesis for the hypothesis.

The scatter plot illustrates the criticality of education and training in the promotion of blockchain adoption. As respondents become more accustomed to blockchain's capabilities and the benefits associated with it, the desire to use it in financial systems increases. As a result, organizations must increase their efforts around blockchain literacy to better allow a smooth move towards a blockchain based accounting system.

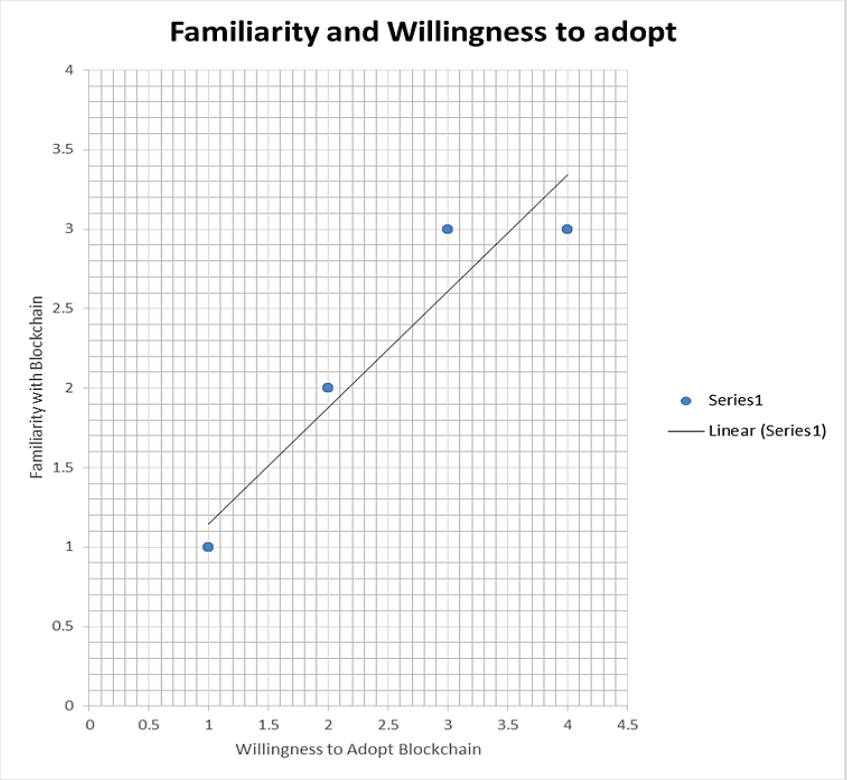

Figure 1. Correlation between familiarity and willingness to adopt

Source: self-made

Figure 2 shows a bar chart of the respective support required for adoption of blockchain technology as reported by respondents. The respondents are indicated on the x axis (from 1 to 29), whereas the y axis shows how much support they needed to adopt (0 to 4.5). From the chart, the data shown that most of the respondents need different levels of support in adopting blockchain as seen from the height of bars in the respondents. The middle range (2, 3) is relatively spread across the bars, hence some respondents feel moderate support needs whereas some require a slightly higher or a lower support need. This implies that the necessity of such support is not equal for different respondents and varies according to the degree of their knowledge and easiness with using blockchain technology. This suggests that tailored support programs are vital to support blockchain adoption in organizations, since the need for support is relatively evenly distributed across respondents. The earlier correlation findings are reinforced by this graphical representation, where respondents with less familiarity with blockchain technology perceived there to be a higher need for support, in contrast to respondents with more experience who perceived less

support was necessary. As shown in the Fig 2, adequate training, resources and the guidance supports to improve the adoption of blockchain, most especially that are familiar a lesser extent.

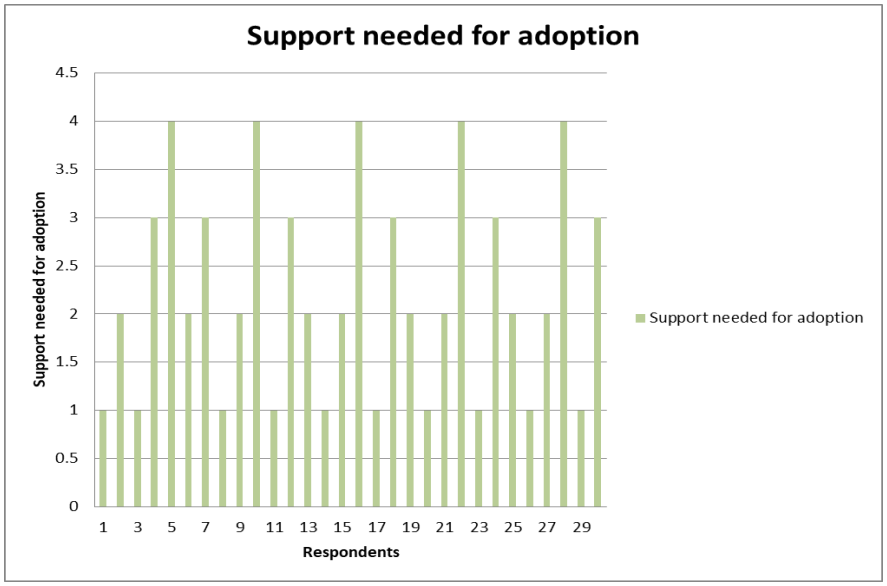

Figure 2. Responses related to support needed for adoption

Source: self-created l

DISCUSSION

To understand the blockchain technologies that are adopted in Thai businesses

The secondary research has clearly shown the successful implementations of blockchain by important Thai financial institutions such as Kasikornbank and Siam Commercial Bank (SCB). The instances focus on cross-national payments and remittances. This portrays the usage of consortium and permissioned blockchain. The insights focus on the balance between the transparency of blockchain and the control required for financial institutions. Kasikornbank is involved in "Project Carina" with the help of "Q money" [11]. The secondary research depicts the particular applications of blockchain technology. However, it does not have detailed information about the wider usage of different types of blockchain sites like Hyperledger Fabric and Corda in the businesses of Thailand. It is necessary to do further studies to get an idea about particular technologies used and their suitability for different accounting needs.

To examine the effect of transparency and reliability of financial data in Thai brands because of blockchain technology

Based on the analysis it has been seen that blockchain highly improves reliability and transparency. According to insights by [15], the immutable element of blockchain records makes them free from errors which ultimately decreases fraud. According to [32], blockchain enhances transparency, efficiency and security with the help of real-time tracking. The survey data also aligns with the insights of secondary data. There has been a high correlation of 0.83 between familiarity of blockchain and belief that it enhances financial transparency. Moreover, familiarity also has a stronger correlation of 0.9 with effect on reliability. The responses rate the blockchain to make financial data reliable as 1.75, which depicts high agreement.

To understand the challenges in the implementation of blockchain technology in the accounting systems of different organizations

Different challenges exist in the widespread usage of blockchain in accounting. The survey of the 30 managers and employees of Thai businesses portrays that the major barriers are lack of technical skills and high cost of implementation. This aligns with the findings of TPP technology in 2020 that blockchain adoption bears high cost of

implementation and need for skilled workforce. [25] mentions the major challenges being “scarcity of adoption, high cost of implementation and scalability problems. The vulnerabilities related to securities are phishing and Sybil attacks [23]. The challenges require a multidimensional approach that needs training investments, cost-effective solutions and clear regulations.

To compare the usage of traditional technologies and blockchain in the accounting systems of Thai businesses

Based on the overall analysis, it can be said that blockchain has major advantages over the conventional systems. Though most of the respondents leveraged digital accounting software (shown through the average score of 2.33), they often depend on manual processes and centralized databases. The security, efficiency and transparency of blockchain is improved through the decentralised and automatic nature. According to insights of [33], blockchain is helpful for the improvement of security, reduction of cost and faster payments. The strong correlation of 0.96 between familiarity and willingness to adapt portrays the importance of training and education. Hence, a hybrid approach is necessary to incorporate blockchain in the existing systems.

CONCLUSION AND RECOMMENDATION

Conclusion

The study has revealed that blockchain has the capability of improving transparency, reliability and efficiency in financial reporting and accounting in businesses of Thailand. With the help of survey analysis and correlation, it has been seen that familiarity with blockchain highly affects the perceptions of the benefits. The interpretivism philosophy, inductive approach and primary data collection method have helped in the proper understanding of the real-world issues like high cost of implementation, and legal uncertainties. The findings portray the requirement for policy measures and industry coordination to promote adoption. It can be concluded that for the policymakers and businesses, blockchain can prove to be a major opportunity for the optimisation of the accounting process and overcoming fraud. Research in the future need to examine sector-specific implementation issues and the role of government support in the acceleration of blockchain adoption in Thailand.

Recommendation

Challenges and opportunities are presented in a different landscape, financial reporting landscape and accounting for the blockchain technology adoption in Thailand.

Encourage Strategic Adoption: With the help of a pilot project, the business starts through accounting systems and gradually integrates blockchain. Furthermore, before the full-scale adoption, the firms will be allowed to assess smart contracts, invoice verification, specific functions and implementing blockchain.

Regulatory and Compliance Frameworks: Towards financial reporting, the blockchain is to provide clear guidelines and applications through the Exchange Commission, securities and regulatory authorities like the Bank of Thailand [19]. In addition, preventing fraudulent activities and company activities will help to ensure industry standards.

Investment in Infrastructure and Training: To enhance the value of blockchain in organisations of Thailand, there is a need for investment in employee training and infrastructures. By giving accountants and financial professionals skills to function effectively in a blockchain-enabled system, a systematic shift away from traditional accounting procedures should be considerably simpler [34].

Address Implementation: Organizations should ensure they install appropriate control measures for cybersecurity and change out-of-date accounting systems to improve on compatibility and integration problems. Yet, business entities should engage with providers of business blockchain solutions to facilitate technical issues to enhance the adoption of the new technology in the financial context.

Collaboration and Knowledge Sharing: On the blockchain the exchange impact is led by technology experts and collaboration with global firms [1]. In addition, in the financial sector adoption and innovation will accelerate through establishing partnerships.

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