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Blockchain Application for Value Chain Management in Corporate Banking to Enhance Competitive Advantage

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Abstract

A corporate bank specializes in providing a variety of services tailored to the needs of major enterprises and corporations, including those in the private and government sectors, rather than catering to individuals, which is known as consumer banking. Blockchain technology application and integration allows banks and other financial institutions to overcome current inefficiencies, enhance security and transparency whilst remaining ahead of its competitors. Furthermore, blockchain integration will reduce the time spent between value chain activities, ultimately reducing expenses. The current extent of global technology is swiftly progressing and infiltrating all sectors. Within the financial sector, organizations are continuously seeking to create innovative strategies and solutions that priorities the needs of their corporate clients while maintaining a strong competitive edge over other firms. Corporate financial institutions must strive to maintain competitiveness versus other organizations while also maintaining operational efficiency, security, traceability, and openness. Blockchain technology enables corporate financial institutions and banks to utilize their services and streamline their internal procedures. Banks can enhance their existing processes, including transactions, identity verifications, smart contracts, and internal operations like HR and procurement, through the implementation of distributed ledger technology. The advantages of this platform is the secure way to conduct cross border payments on a blockchain platform approved by the central bank that has the potential to reduce operational costs whilst remaining in compliance with the regulatory bodies. (CBUAE 2021). The application of blockchain into the value chain of the CB allows the firm to reposition itself in the market to meet the landscape of the evolving banking and finance industry. This exploratory research thesis explored the ways blockchain can be implemented into the CB value chain and its respective impact on each value chain activity in order to achieve sustained competitive advantage.

Keywords
Blockchain, Corporate Banking, Technology

1. Introduction

The current extent of global technology is swiftly progressing and infiltrating all sectors. Within the financial sector, organizations are continuously seeking to create innovative strategies and solutions that priorities the needs of their corporate clients while maintaining a strong competitive edge over other firms. Corporate financial institutions must strive to maintain competitiveness versus other organizations while also maintaining operational efficiency, security, traceability, and openness. Blockchain technology enables corporate financial institutions and banks to utilize their services and streamline their internal procedures. Banks can enhance their existing processes, including transactions, identity verifications, smart contracts, and internal operations like HR and procurement, through the implementation of distributed ledger technology.

A corporate bank specializes in providing a variety of services tailored to the needs of major enterprises and corporations, including those in the private and government sectors, rather than catering to individuals, which is known as consumer banking. Commercial banking primarily caters to small and medium-sized enterprises (SMEs) by offering a range of services. Corporate banks provide a variety of services including deposits and lending. Lending alternatives offered by the bank, such as loans, bonds, or credit lines, are designed to meet the financial needs of large-scale

organizations for various objectives. Additional services encompass cash management and treasury solutions, wherein the corporate bank offers support to firms in effectively overseeing their cash flow and minimizing risks in order to optimize profitability and enhance shareholder value. Trade finance is a crucial component of corporate banking where the bank provides solutions and foreign currency services to support secure and efficient cross-border transactions. Investment banking plays a crucial role in corporate banking, offering services including mergers and acquisitions to big corporate clients. Risk management is crucial in all of the stated services. Corporate banks are required to evaluate and control risks associated with all the services they offer to their clients. Risk management include a comprehensive evaluation of potential hazards, implementation of measures to minimize financial risks, and utilization of specialized knowledge and technology to facilitate risk management. The specialized services provided by corporate banks to their corporate clients are essential for the development and expansion of firms, actively enhancing their operational efficiency.

Integrating blockchain technology into the value chain of corporate banking is essential for ensuring long-term success in financial service offerings and internal company operations. The adoption of blockchain technology represents a substantial progress in attaining enduring competitive advantage by revolutionizing existing banking and operational procedures. Multiple considerations underscore the importance of its research and use. An important aspect of research is the advantage of blockchain technology's ability to enhance transparency. Blockchain utilizes a decentralized ledger system to improve the durability and clarity of transactions as well as the sharing of data and other information. The utilization of smart contracts on the distributed ledger enhances the efficiency of several business activities in the corporate bank, including settlements, trade financing, credit facilities, cross border payments, and loan facilities. This enhanced efficiency leads to the elimination or reduction of middlemen, resulting in improved processing times and decreased overall expenses. Another contributing component to the research's significance is in the improvement of security protocols. The banking sector is responsible for managing a substantial volume of confidential data and significant monetary holdings, necessitating stringent security measures to safeguard the associated information. Blockchain technology incorporates cryptographic algorithms to enhance the security of transactions and data exchange, hence mitigating the risks related with fraud, data manipulation, cyber threats, and breaches of personal information. Ensuring the security of confidential and sensitive information enhances stakeholders' trust and upholds the integrity of the corporate bank. Integrating blockchain technology into a corporate banking value chain provides a heightened competitive edge. A corporate bank that incorporates innovation and technology into its operations can attract clients who are seeking modern and secure banking goods and services. Aside from its attraction, a corporate bank's capacity to implement new techniques allows for the expansion of its service offerings and the maintenance of a competitive edge in a changing market landscape (Al Shanti et al 2023). Adherence to regulatory guidelines is a crucial aspect of research's relevance. Blockchain possesses inherent attributes that enable compliance with regulatory norms. By employing automated reporting and leveraging reporting capabilities, corporate banks may deliver high-quality services that adhere to regulatory requirements. This technique helps to reduce potential hazards, such as financial penalties and harm to the firm reputation. By effectively managing these risks, the corporate bank may create a business environment that fosters sustained growth and secures a leading position in the competitive market. The financial sector necessitates a cooperative ecology. The importance of facilitating a collaborative ecosystem is crucial for the significance of research, as it enables the establishment of a collaborative environment involving various stakeholders in the business ecosystem. Enabling secure data sharing and promoting openness among financial institutions, regulators, and other relevant parties, including clients, leads to significant advantages for all players in the industry.

Security and efficiency are key drivers of competitive advantage in the financial sector. Corporate banks operate in a dynamic and technology driven market, and given that the UAE government is actively working on moving processes on a blockchain system, corporate banks must enhance their competitive edge in its value chain management. Despite the current effectiveness of their value chain management, the value chain processes need to be amended to meet the needs of changing needs of the industry along with the expectations of their corporate clients. Blockchain technology application and integration allows banks and other financial institutions to overcome current inefficiencies, enhance security and transparency whilst remaining ahead of its competitors. Furthermore, blockchain integration will reduce the time spent between value chain activities, ultimately reducing expenses.

1.1 Research Model: Technology Adoption Model (TAM)

The Technology Acceptance Medical (TAM) is a theoretical framework that is used to analyze and assess the acceptance of new technologies whether it be an organizational setting or other. It can be applied in different fields and industries in order to assess and explore the various factors that may influence people’s intentions to accept and

adopt a certain technology (Lala 2014).

The framework is made up of perceived usefulness and perceived ease of use. Perceived usefulness refers to the perception that the adoption of a certain new technology within the organization would enhance the performance metrics and increase efficiency. The way an individual perceives the usefulness of a particular technology plays a crucial role in the analysis of assessing how likely this individual would adopt the technology. Perceived ease of use refers to the perception that the proposed technology to be implemented within an organization is not complex to work with in their work tasks. This takes into account the technology' interface, how simple it is to operated, the learning curve and training that comes with the it. The framework ultimately suggests that the likelihood an individual would be inclined to accept a new technology is directly influenced by the two factors mentioned above. This framework provides guidance to implement strategies in order to ensure a successful implementation of a new technology within an organization. (Lala 2014)

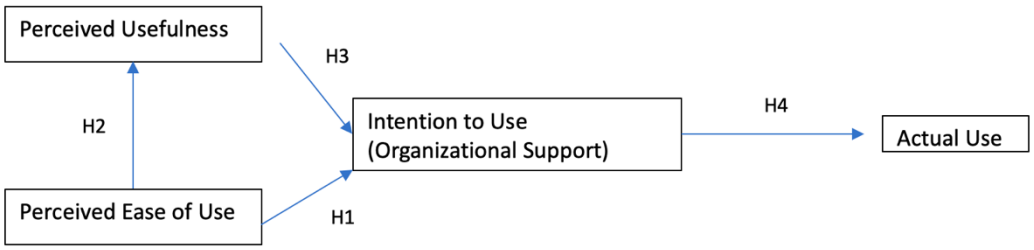

Figure 1: TAM research model

1.2 Hypothesis

Hypothesis 1 – Anticipated Perceived Ease of Use: There is significant correlation between CB employee's intention to embrace the technology into the CB and its perceived ease of use.

Null Hypothesis (H0): There is no significant correlation between CB employee's intention to embrace the technology into Citibank Corporate Bank division and its ease of use.

This hypothesis will assess if CB employees will be more likely to accept blockchain technology if they believe that it is simple to use and incorporate into their value chain activities.

Hypothesis 2 – Perceived Usefulness: There is significant correlation between the corporate bank employees intentions to utilize blockchain and their perception of its potential

Null Hypothesis (H0): There is no significant correlation between the corporate bank employees at Citibank intentions to utilize blockchain in their corporate division and their perception of its potential

This hypothesis will assess if CB employees will be more likely to adopt the idea if they believe that the adoption of blockchain technology can improve the effectiveness and transparency of their value chain operations

Hypothesis 3 – Intention to use (Organizational Support): There is a correlation between CB employee's intentions to embrace and use blockchain technology and organizational support

Null Hypothesis (H0): There is no correlation between Citibank Corporate Bank employees' intentions to embrace and use blockchain technology and organizational support.

This hypothesis will assess if CB employees would be more likely to use blockchain to enhance their current value chain operations they believe the organization will provide strong support to do so.

Hypothesis 4 – Actual Use: There is correlation between CB employee's desire to use or advocate for blockchain and

the technology's actual adoption

Null Hypothesis (H0): There is no correlation between Citibank Corporate Bank employees desire to use or advocate blockchain technology and the technology's actual adoption.

This hypothesis will assess if CB employees will be more likely to continue utilizing blockchain supported technology if they continue to see improvements in their performance metrics and value chain activities.

2. Literature Review

The current context of research of blockchain in corporate banking is still currently evolving as banks and financial institutions have only recently began exploring the application of blockchain technology into their operations and services. Pathrose (2022), states that Dubai is a global hub for blockchain with over 100 registered blockchain companies in the United Arab Emirates being based in Dubai. What attracts blockchain companies to operate from Dubai is the future plans of the Dubai government to convert almost all government services to blockchain systems. This includes services such as trade license renewals, visa applications, and other government bills. In the last 6 years, they have been working to develop automated payment infrastructures that use blockchain technology. It is key to note that many other countries and international banks are following the same route, including Barclays Bank. (Pathrose 2022)

Corporate banking is a segment of the banking sector that offers intricate and frequently tailored financial services to business clients, including enterprises and organizations. These services involve borrowing and financing alternatives, as well as risk management solutions. The products and services given within the corporate banking domain are intricate, characterized by integration with many other sectors of the bank, and are often delivered on a substantial scale ranging from millions to billions of units (Brealey et el 2023). The intricate nature of this layout is intended to cater to the requirements of medium-sized and big organizations and corporations, particularly organizations with a worldwide presence. Significant consumers of corporate banking often get a range of offerings as well as a personal connection with banking experts who are able to address the unique requirements and risks faced by major enterprises.

What distinguishes corporate banking from commercial or business banking?

It may seem that phrases like "corporate" and "commercial" are applicable to all businesses. However, corporate banking solutions, including Treasury administration, asset-based financing, funding markets, and bridge finance, are specifically designed to cater to the requirements of major enterprises that have a local or global orientation. On the other end of the spectrum, business or commercial banking offerings are specifically tailored to cater to the needs of smaller and mid-size enterprises. These offerings include a range of financial solutions such as daily transactional accounts, loans, payroll management, investment opportunities, and credit facilities. Importantly, these services are distinct from the personal banking activities of the company owners. A company's financial data and transactions may be accessed and managed by various people with the help of business banking (Matthews et el 2023). Commercial banking services, identical to those provided to corporate clients of banks although on a reduced scale, frequently involve a variety of offerings tailored to the specific dimensions and industry of the customer. In addition to offering various financial services, commercial banking institutions often assign a relationship manager to assist enterprises in effectively navigating their borrowing, banking, and investment alternatives. (Vernimmen et al 2022).

Corporate banking aims to provide a range of competitive financial services to their corporate clients. However, a key part of their onboarding operations is their strict KYC processes, which are crucial for AML (anti money laundering) and fraud detection, whilst also ensuring regulatory compliance and establishing long term relationships with their clients. Corporate Banks are required to comply with all applicable regulations both domestically and internationally. CBs within the UAE adhere to the regulations of the UAE Central Bank, and is required to remain compliant with their KYC standards and remain up to date with any laws or regulations that have changed. They out all the due diligence procedures on its corporate clients in order to accurately verify their identities, correct records, track movements of cash flow and effectively evaluate all risks involved. Corporate banks work around a customer centered strategy, and aims to provide a seamless experience for their corporate clients whilst remaining compliant with regulations. There is a clear balance between customer satisfaction and meeting KYC requirements, ensuring that due diligence is met without compromising the client experience. KYC processes require strict data and privacy security as corporate clients are cautious of their sensitive data. There are current measures in place to protect sensitive data – however this research will further examine how blockchain application will combat the challenge of data protection

and compliance with financial industry standards and regulatory laws. These KYC procedures incur a significant expense on banks. On an annual basis in the USA, banks usually incur expenses that exceed $50 million on KYC processes and record keeping/updates alone. (Pratap 2018) Blockchain technology application can not only reduce the annual cost, but also decrease the time spent on a single client KYC process and the number of employees a bank needs to employ to complete KYC procedures.

In a summary, a CB works around a value chain composed of multiple phases such as customer acquisition and retention and risk management. In order to deliver quality financial services whilst remaining competitive, it is crucial that effective value chain management is set in place. This case study will look further into how the application and integration of blockchain into the value chain management of a corporate bank will increase their competiveness due to faster processing times and greater security, and lower the expenses of the bank due to requiring less employees to complete certain processes.

To explore the main research question, a CB can enhance their competitive advantage though the integration of blockchain technologies into their value chain activities. The first benefit is the increased security. The way blockchain works is that any data inputted into a node is unchangeable and can only be accessed by approved individuals. Due to this feature, the corporate client's data risk of fraud or unauthorized access is decreased substantially. Another noted advantage is the automation for increased operational effectiveness that blockchain integration provides. Blockchain application will allow for atomization of a number of activities in the value chain such as KYC and transaction processing. The automation means that manual processes decrease which can also reduce the number of manmade mistakes or delays in processing times (Saheb & Mamaghani 2021). Corporate clients will benefit more from faster processing times and Citibank will be able to assist more clients with a smaller team. This results in quicker processing times and lowers operating costs. Lower operational costs mean that a CB can provide their corporate clients with more competitive pricing, which can be in the form of lower fees or lower interest rates. Because blockchain provides a transparent and unchangeable record of every transaction, it will be easier to identify any discrepancies as the movement of cash is tracked, which results in enhanced risk management (Kimani et al 2020). The transparency builds more trust with corporate clients and also allows the bank to comply easily with regulations. All these benefits will allow a CB to dive deeper with their customer focused strategy.

2.1 Blockchain

Blockchain is also commonly classified as DTL, in which data is securely stored in a network that are in the series of 'blocks' which contain transactions that are linked together in chronological order. Once a transaction is recorded, it cannot be changed, making it immutable. This means that the data cannot be altered or deleted, and because the blocks are linked in order throughout the network, this makes the system more transparent and preserves the integrity of the transaction history. Another key feature of blockchain is that it is a decentralized network, which is favored for its resistance to temperament and fraud, ultimately increasing its security rating due to the cryptographic techniques used to record the transactions on the network, making each transaction easily verifiable (Pathrose 2022). Blockchain is a relatively new technology, and although introduced in the late 1990's, there has been many advancements over the years and only recently began to be applied into the financial and banking sector. The modern notion of blockchain that we know today and its application in the financial industry began with a white paper in 2008 by Satoshi Nakamoto, when the first idea of a decentralized digital currency, known as Bitcoin, on the blockchain network was introduced (Patel 2022).

Following the introduction of Bitcoin, many other cryptocurrencies began to emerge such as Dogecoin and Binance Coin. There are four classifications in cryptocurrencies:

- Payment cryptocurrencies: this form of currency is used as the name suggests, to facilitate transactions. This classification is usually created with a limited number to ensure the value rises and less of these coined can be mined.
- Tokens: This type of cryptocurrency is known as a digital asset that works on a blockchain. They can come in different forms such as NFTs (Non-Fungible tokens) and entertainment tokens, which can be used for blockchain based gaming platforms (Fairfield 2022)
- Stable coins: this classification of digital currency is built onto the blockchain and can also be pegged to a physical currency like the US Dollar as long as reserves to that physical currency is maintained. This allows the cryptocurrency to maintain its value within the volatile market.
- CBDC (Central bank digital currency): CBDCs are digital currencies that are issued by a central bank in the form of tokens and the issuing central bank maintains full control over the currency. They are used for

cross border payments, and to enhance efficiency of payment transactions whilst lowering the costs. It is important to note that this classification is still in early development and only a number of central banks use CBDCs. (Infante et al 2022)

2.2 Value chain in the Corporate Bank

The value chain in a corporate bank contains more operationally specific activities than the generic value chain due to the nature of services and products provided by a corporate bank. In the context of corporate banking, the value chain is greatly reliant on financial products/services expertise, technology and regulatory compliance. A corporate banking value chain is as follows:

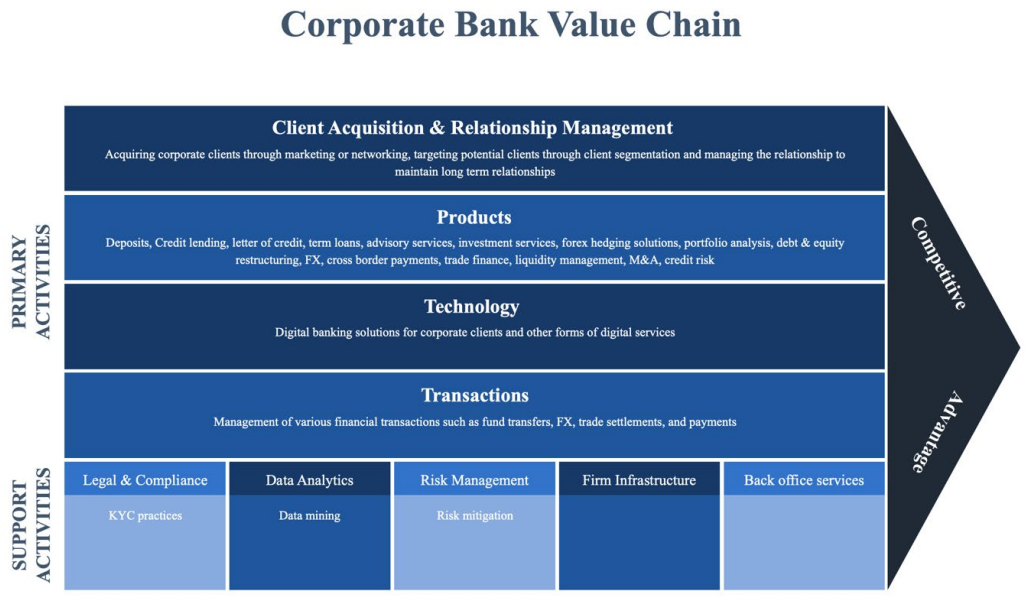

Figure 2: Value chain of a corporate bank

As seen in Figure 2, in the primary activities of the corporate bank, client acquisition and relationship management are one of the essential components which involves the establishment and maintenance of relationships with corporate clients. Successful relationship management plays a role in the long-term success of the corporate bank and the expansion of their client portfolio, which in turn can attract more clients. This primary activity is composed of different strategies when it comes to the acquisition and retention of corporate clients whilst expanding the network to build a strong corporate client portfolio. The initial acquisition of a corporate client is the first step for a corporate bank to build a long-term relationship. There are different strategies involved when it comes to customer segmentation and targeting, which involves processes such as market research and data analytics in order to be able to successfully offer the correct banking product for the potential customer. Having a strong client base also allows corporate clients to approach the corporate bank themselves in search for their required financial services, given that the corporate bank has a good reputation among strong corporate players in the market. The success of long term relationship management requires an ongoing commitment from the corporate bank to fully understand the client's requirements and be flexible in evolving as the market or client business infrastructure changes. The first step to successful relationship management is the establishment of trust and credibility of the corporate bank from both the market and the client themselves. This means that the dedicated RM's or RA's should have regular communication with the client and display a dedicated approach towards the support of the client's ongoing needs. RM's and RA's are the direct points of contact for a client within a corporate bank and therefore must offer personalized and dedicated communication to ensure a positive flow of operations with rapid rate of responsiveness. By effectively managing and maintaining long term relationships with corporate clients, the corporate bank will be able to achieve sustained success from the competitive advantage gained from the establishment of long lasting client relationships. (Lamarque 2000)

Products and offerings are another primary activity within the value chain of a corporate bank and their principal focus include the development, innovation and delivery of a range of products and services that are curated according to the client segmentation and requirements (Lamarque 2000). After detailed analysis of the corporate client's requirements, the corporate bank will offer products and services that cater to the financial requirements of the client.

Technology integration and development is a fundamental primary activity within a corporate bank's value chain that is centered around the continuous use of advanced solutions with the aim to enhance security, client experience and streamline operational processes to reduce turnaround processing time and deliver excellent financial services for the client. Technology integration can come in various forms such as digital banking solutions in the form of platforms or apps, which are crucial towards the enhancement of the client's experience. These platforms can allow corporate clients to conveniently manage accounts, access some banking services and conduct certain transactions without the need to revert back to the corporate bank. Technology integration is also used to process transactions in an automated way. This allows transactions such as payments or transfers to be processed faster resulting in streamlined operations and enhanced client experience (Broby 2021). Technology integration in a bank however requires robust security measures in order to be successful, as there is sensitive internal and client data to be protected and should be protective against cybersecurity threats whilst also complying with regulatory measures and data privacy guidelines. Successful integration of technology has paved the way for transformation in the ways corporate banks deliver their financial services. When blockchain is integrated in the technology activity of the value chain, it can facilitate for streamlined processes as it reduces the risk of manual errors and provides enhanced security measures to protect sensitive information and prevent tampering of data. Technology is considered to be an enabler in the value chain of a corporate bank as it results in enhanced operational efficiency and client experience – both of which are crucial towards the heightened competitive advantage of a corporate bank. (Al Shanti & Elessa 2023)

Transactions are enclosed within their own primary activity in the value chain of a corporate bank as they are considered to be a core aspect of the corporate bank's activities. Transactions consists of various processes which are intended to ensure a smooth and secure experience for both the client and the corporate bank. There are different transactions that are conducted in a corporate bank, such as payments processing of both domestic & cross border, FX transactions for clients that are engaged in international trade at sometimes preferential conversion rates and trade finance transactions which are in essence the provision of letters of credit or trade settlements which allow clients to manage their trade settlements. When a corporate bank handles their transactions successful, it results in increased client satisfaction which is crucial to the establishment and maintenance of long term relationships, risk mitigation through the reduction of operational errors and most importantly – a sustained competitive advantage. The financial market is fast paced in nature, and requires transactions with fast processing times and minimized errors which will allow the corporate clients to be able to gain access and capitalize on market opportunities. By paving the way for corporate clients to be able to do this, the corporate bank achieves a competitive advantage against other corporate banking firms in the market. (Grebenkova 2020).

Moving onto support activities, L&C is considered to be a critical activity within the value chain of a corporate bank. L&C activities ensure that all processes within the corporate bank meet regulations and ethical standards of the bank whilst also mitigating any legal risks that may appear. The financial industry operates in a complex landscape with strict regulations that require complete compliance. It is important for the L&C team to also critically assess any potential legal or compliance risks such as AML and data privacy laws. Within this support activity, the L&C team is responsible for all administrative tasks such drafting and reviewing all legal contracts to ensure interests are met whilst also complying with the regulatory bodies. The team also remains up to date with any changes from regulatory bodies such as the central bank and communicates this across the rest of the value chain to ensure that the bank remains compliant on an up to date basis. (Zulfikar 2020).

Data analytics is another support activity within the value chain of a corporate bank. This activity is responsible for the analysis of various of forms of data in order to extract insights that will improve decision making processes for different departments and activities. This is done through the extraction of significant patterns or correlations from large sets of financial data. Data analytics can also serve as a means to mitigate risk (which is another support activity in the value chain) through the utilization of predictive analytics to assess risks such as lending risks and investment risks. This type data can then be used for predictive modeling to forecast various risks and opportunities within the activities of the corporate bank. (Hung et al 2020).

Risk management involves the processes of the identification, analysis and mitigation risks that can be associated with

the corporate bank and its activities. These risks can come in various forms such as credit risk and investment risk – which directly affects both the corporate bank and the client. Risk management works closely with data analytics to ensure stability and security of the activities across the corporate bank. Once a risk is identified, it must be analyzed and monitored in order to be able to derive a successful strategy to mitigate the risk whilst protecting the interests of both the client and the corporate bank. (Kristensen et al 2009).

The support activity following risk management in the corporate bank's value chain is firm infrastructure which entails the management of the organizational systems and processes to ensure effectiveness in a streamlined manner. Effective management of a firm's infrastructure provides the groundwork for successful strategic decision making across different levels of the corporate bank. Successful human resource management falls under the firm's infrastructure. It is critical to ensure the talent and skill that are employed by the corporate bank are competent enough to be able to support banking operations to ensure the long-term targets of the corporate bank are met. (Odero 2006)
The final support activity within the value chain of a corporate bank is back office services, which is composed of all the administrative activities that are essential for the day to day functioning of the corporate bank. There are several functions of this support activity. The first is processing the transactions on the back-end systems whilst ensuring accuracy and compliance. This is essential for accounting purposes in order to maintain accurate records to be able to prepare statements and reports. Back office services also include documentation activities which include the management of documents regarding client accounts and their respective transaction history. Back office services require accuracy, integrity and security of the data entries in order to remain compliant and efficient. (Babadi et al 2022)

3. Methodology

3.1 Quantitative analysis

The gathering, analysis, and interpretation of data in the research field have effectively been influenced by quantitative analysis, which is considered a critical element in the research process. The aspect uses statistical and numerical approaches to explore and understand varied commercial concepts in the specified environment, including operational procedures, financial performances, consumer behaviors, and market trends. Many studies, both in the commercial environment and other fields, have adopted the use of quantitative data analysis over the different approaches applied in the current business environment based on its real-time capability. This analysis digs deep into the entire aspect of quantitative analysis and its application in commercial operations, how advantageous and disadvantageous it is, the critical nature of data collection in relation to surveys, and the possible risky aspect linked to quantitative research.

3.2 Survey Data Collection

Surveys are among the most common methods used in research, especially concerning collecting data. Varied research agencies and personnel has normalized the use of survey in data collection due to the wide range of advantages it offers to the process. First, there is efficiency in data collection under the survey, an aspect that has aided the quantitative research approach. There is a need for little to access a considerable mass of respondents. This is one of the aspects that increases the practicality and cost-effectiveness aspects of surveys in quantitative research. Second, there is the concept of standardization that surveys have influenced data collection. There is consistency in the responses needed and the questions asked in the research to all the persons participating in the study. This enhances the uniformity of data and its easy analysis and comparison. (Couper 2017)

Also, the survey is critical in quantitative research data collection because it provides anonymity to the participants. This influences candid responses. It is essential to consider individual preferences and opinions and approach sensitive topics. The capability of surveys to generate structured data with amenability to quantitative research makes it advantageous in the research field. It increases the ease of identifying patterns and trends in data, graphs, and charts generation and the performance of statistical analysis. There is some ease in the administration of surveys in data collection compared to other methodologies. Their suitability is linked to collecting customer feedback and market research due to their ability to reach a diverse and broad audience.

4. Conclusion & Recommendation

The application of blockchain into the CB would be a new technology adoption, and even though majority of the survey participants in this study were accepting of the technology, there may still be some resistance within the organization. In order to overcome the resistance, I would recommend the CB to implement change using Kotter's 8-step change model in the following steps:

1) Create a sense of urgency: The CB can do this by clearly communicating the ways the new technology integration will have a positive impact across the division.
2) Form a coalition: The CB can do this by creating a team made up of different individuals from different departments (RM, KYC, Risk, L&C) in order to advocate and guide throughout the process. The CB can also use this step to involve stakeholders and address any concerns that may arise.
3) Create a strategic vision: The CB can do this by allowing the dedicated team to form clear objectives towards the integration of the DTL across the division and ensure that these objectives are aligned with the organizational targets.
4) Communication: The CB can do this by creating a platform for communication in a transparent manner and implementing an open-door policy to address any queries and questions that may arise.
5) Identification of obstacles: The CB can do this by assessing the potential barriers that may arise. These barriers can be lack of training or the fear of new technology implementation.
6) Set short term wins: The CB can do this by breaking down the objectives created into smaller objectives so that they can have a clear vision of the small successes. This builds confidence within the division as the change is implemented.
7) Build the change: The CB can do this by continuously improving as each objective is met, and slowly expanding the DTL integration within the CB. This is also the time where feedback is collected, as it can be used to create further improvements
8) Sustain the changes: The CB can do this by adding new policies that integrate the blockchain technology within the organizational culture. The change acceptance can be sustained by recognition of successful individuals or departments whose performance metrics improved through the blockchain integration. (Tang 2019)

I would also recommend that the CB invests in training programs and ensures a guidebook is created that is kept on the internal system for employees to refer back to. The training content can be segregated into different modules according to the department. In addition, various training methods can be conducted such as workshops, seminars, and online courses. A dedicated team should also be set up to assist with the ongoing queries that may arise, especially in the early stages or for new staff who don't have experience with specific systems before. The ongoing support will provide the CB employees with further reassurance and there will be a reduction in the resistance (Karim et al 2019). The last recommendation I would like to add is CB joining mBridge, which is a platform used by the Central Bank of the UAE for cross border payments using digital currencies based on DTL. The central bank has been using this since 2021. The advantages of this platform is the secure way to conduct cross border payments on a blockchain platform approved by the central bank that has the potential to reduce operational costs whilst remaining in compliance with the regulatory bodies. (CBUAE 2021)

The application of blockchain into the value chain of the CB allows the firm to reposition itself in the market to meet the landscape of the evolving banking and finance industry. This exploratory research thesis explored the ways blockchain can be implemented into the CB value chain and its respective impact on each value chain activity in order to achieve sustained competitive advantage. DLT is built on transparency and security, which allows the banking industry to transform whilst remaining secure of sensitive internal data. This thesis contained discussion on the different applications of blockchain across the value chain activity in order to be able to assess how well it can be applied. The survey results showed positive responses in terms of technology acceptance and positive predictions for the efficiency of the future value chain under the blockchain integration. The increased efficiency of the value chain, combined with the enhanced security will increase client satisfaction and trust, resulting in long term relationships and the acquisition of new clients to increase the current portfolio of the CB. Streamlined processes and clear audit trail also mean that the bank is able to be more complaint with regulations. This is especially crucial because the regulatory environment of the financial industry is always evolving and requires banks constantly to remain up to date. The process in which new technology is being adopted into an organization is not an easy one, but it can be greatly rewarding with the positive impacts it can bring it to the organization and its competitive advantage.

References

Al Shanti, A.M. and Elessa, M.S., The impact of digital transformation towards blockchain technology application in banks to improve accounting information quality and corporate governance effectiveness. *Cogent Economics & Finance*, *11*(1), p.2161773, 2023.

Brealey, R.A., Myers, S.C. and Marcus, A.J., *Fundamentals of corporate finance*. McGraw-Hill. 2023.

Broby, D., Financial technology and the future of banking. *Financial Innovation*, *7*(1), pp.1-19, 2021.

Babadi Akashe, M., Abbasi, A. and Ranaei Kordshouli, H., Designing a model of banking service value chain. *Journal of Business Administration Researches*, *14*(28), pp.171-202,2022.

Couper, M.P., New developments in survey data collection. *Annual review of sociology*, *43*, pp.121-145, 2017.

Fairfield, J.A., Tokenized: The law of non-fungible tokens and unique digital property. *Ind. LJ*, *97*, p.1261, 2022.

Grebenkova, D., Corporate Banking: Analysis, Valuation and Financing Structure of the Company. *Review of Business and Economics Studies*, *8*(1), pp.41-66, 2020.

Hung, J.L., He, W. and Shen, J., Big data analytics for supply chain relationship in banking. *Industrial Marketing Management*, *86*, pp.144-153, 2020.

Infante, S., Kim, K., Silva, A.F. and Tetlow, R.J.,The macroeconomic implications of CBDC: A review of the literature, 2022.

Kimani, D, Adams, K, Attah-Boakye, R, Ullah, S, Frecknall-Hughes, J & Kim, J., 'Blockchain, business and the fourth industrial revolution: Whence, whither, wherefore and how?', *Technological forecasting & social change*, vol. 161, p. 120254, 2020.

Kristensen, K., Mørch, L.S. and Sørensen, H.D., Managing the Value Chain in a Large Nordic Bank: The case of Danske Bank. *Management Models for the Future*, pp.1-12, 2009.

Lala, G.,The emergence and development of the technology acceptance model (TAM). *Marketing from Information to Decision*, (7), pp.149-160, 2014.

Lamarque, E., *Key activities in the banking industry: An analysis by the value chain*. SSRN, 2000.

Matthews, K., Thompson, J. and Zhang, T., *Economics Of Banking, The*. World Scientific, 2023

Odero, S.B., *The Value Chain and competitive advantage in the corporate banking industry in Kenya: The case of Citibank Kenya* (Doctoral dissertation, University of Nairobi), 2006.

Patel, R., Migliavacca, M. and Oriani, M.E., Blockchain in banking and finance: A bibliometric review. *Research in International Business and Finance*, *62*, p.101718, 2022.

Pathrose, EP., 'Blockchain and Corporate Banking', *ECS transactions*, vol. 107, no. 1, pp. 4147–4152, 2022.

Pratap, M., How is Blockchain Revolutionizing Banking and Financial Markets, 2018, Retrieved from https://hackernoon.com/how-is-blockchain-revolutionizing- banking-and-financial-markets-9241df07c18b

Saheb, T & Mamaghani, FH., 'Exploring the barriers and organizational values of blockchain adoption in the banking industry', *Journal of high technology management research*, vol. 32, no. 2, p. 100417, 2021.

Tang, K.N. and Tang, K.N., Change management. *Leadership and change management*, pp.47-55, 2019.

Vernimmen, P., Quiry, P. and Le Fur, Y., *Corporate finance: theory and practice*. John Wiley & Sons, 2022.

Zulfikar, R., Lukviarman, N., Suhardjanto, D., Ismail, T., Dwi Astuti, K. and Meutia, M., Corporate governance compliance in banking industry: The role of the board. *Journal of Open Innovation: Technology, Market, and Complexity*, *6*(4), p.137, 2020.