Blockchain in Banking: Possible Use Cases and Benefits.

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1. INTRODUCTION OF THE SPEAKER AND SUMMARY OF THE TOPIC.



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Oriol is member of the Blockchain, Digital Banking and Greater Bay Area Committees at the Fintech Association of Hong Kong (FTAHK), as well as the Singapore Fintech Association (SFA).

He is Fellow at the Digital Euro Association (D€A) and at the Singapore University of Social Sciences (SUSS), Member of the Advisory Council at the Blockchain Council, Scientific Advisor at the Israeli Blockchain Association and Honorary Fellow at the Asian Institute of International Financial Law (HKU).

Furthermore, he publishes articles in several media, including China Daily (both the Global and Hong Kong Edition) and Macau Business.

He has given talks and seminars on the Chinese Financial System, Central Bank Digital Currencies and the Digital Yuan in several universities in Hong Kong and Macau, as well as in international conferences, like the recent Israel/UAE Fintech Week and the Future of Fintech Saudi Arabia event.



Blockchain is undoubtedly changing the world. It is the technology likely to have the greatest impact on the future of the world economy. Just as an example, China Central Television (CCTV) defined blockchain's economic value in 2018 as "10 times more valuable than the internet".

Considered for long a new technology, blockchain is developing fast, and is quickly becoming a key player in many industries, like the financial one.

Even though blockchain is best known for underpinning the operation of crypto currencies such as Bitcoin, this technology can be used in countless other areas, such as **banking, Central Bank Digital Currencies (CBDCs), healthcare, smart contracts, financial services, supply chain management, insurance, IoT, video games...** In my talk, I will focus on how blockchain is or can be applied to the Banking industry, by analyzing a few possible use cases and its benefits.

2.BLOCKCHAIN: A TECHNOLOGY THAT CAN CHANGE THE WORLD.

What is Blockchain?

Blockchain is the technology likely to have the greatest impact on the future of the world economy. Just as an example, China Central Television (CCTV) defined blockchain's economic value in 2018 as "10 times more valuable than the internet".

Considered for long a new technology, blockchain is developing fast, and is quickly becoming a key player in many industries, like the financial one.

What is Blockchain?

If there was no doubt of the importance of blockchain technology a few years ago, the ongoing COVID-19 pandemic, which has certainly confronted the whole world with an unprecedented challenge, has turbocharged a financial technology (Fintech) revolution worldwide in general, and also a Blockchain revolution in particular.

Unfalsifiable and impossible to change once a record has been added, blockchain is a distributed database stored on multiple computers as a massive number of identical copies.

More specifically, blockchain is part of the Distributed Ledger Technologies (DLT), being a digital register, whose entries are grouped in blocks, concatenated in chronological order, and whose integrity is guaranteed using encryption.

Although its size is destined to grow over time, it is immutable because its content is no longer modifiable unless invalidating the entire data structure. To ensure consistency between the various copies, the addition of a new block is globally regulated by a shared protocol. Once the addition of the new block is validated, each node updates its local copy.

HOW DOES BLOCKCHAIN WORK?



Source: G2 Crowd.



Source: PwC.

Applications of Blockchain.

Even though blockchain is best known for underpinning the operation of crypto currencies such as Bitcoin, this technology can be used in countless other areas:



Let's have a look at some of its applications...

1) Crypto currencies.

There is no doubt that crypto currencies are the most famous application of blockchain technology. Many people tend to confuse cryptos with blockchain, confusing both concepts as synonyms, when the reality is that cryptos are just one of the many areas where blockchain technology is applied.

2020 has been one of the best years ever for crypto currencies. We have seen not only a surge in the price of most crypto currencies, among them Bitcoin, but we have also seen institutional investors become more interested in investing in cryptos. We have also witnessed companies like PayPal launching a new service enabling users to buy, hold and sell cryptos, as well as traditional banks like DBS launching a digital currency exchange that will allow investors to in cryptocurrencies and firms to raise funds through traded asset tokenization.

Crypto currencies are starting to become more widely accepted....

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KEY POINTS

BSTEVEKOVACH

accept it as payment

PUBLISHED MON, FEB 8 2021-7:48 AM EST | UPDATED MON, FEB 8 2021-1:43 PM EST

Tesla announced in an SEC filing Monday that it has bought \$1.5 billion worth of

Tesla buys \$1.5 billion in bitcoin, plans to

The company also said it would start accepting bitcoin as a payment method for

 CEO Elon Musk has been credited for raising the prices of cryptocurrencies. including bitcoin, through his messages on Twitter.





Crypto currencies are starting to become more widely accepted....

Foundation

Research

Media > Listing

About

Careers

DBS

DBS to launch full-service digital exchange - providing tokenisation, trading and custody ecosystem for digital assets | 繁體

Sustainability

Singapore Exchange to take a stake in the DBS Digital Exchange

Investors Media

Singapore, 10 Dec 2020 - DBS today announced that it will set up a digital exchange, enabling Institutional Investors and Accredited Investors to tap into a fully integrated tokenisation, trading and custody ecosystem for digital assets.

an gapore, 10 Dec 2020 - DBS today announced that it will set up a digital exchange, enabling Institutional Investors and Accredited Investors to tap into a fully integrated tokenisation, tradi and custody ecosystem for digital assets.



2) Central Bank Digital Currencies (CBDCs).

It is easier to define a CBDC by highlighting what it is not: a CBDC is a digital form of central bank money that is different from balances in traditional reserve or settlement accounts.

CBDCs are also 'programmable money', meaning that payment tokens or digital fiat can now have specific design features and attributes built into the token itself.

What is a CBDC?

Two types of CBDCs:

• Wholesale CBDCs, which would facilitate more efficient central bank clearing operations between the central bank and its members banks.

• **Retail CBDCs**, which would be available for use by the public at large and would be the digital equivalent of a bank note.

The token could pay the token holder interest directly into their wallet and there are endless possibilities for the design of the tokens, as well as the overall network. Each central bank could design a currency according to their own monetary policy and economic objectives.

CBDCs: key aspects

- Digital form.
- Liability of a central bank.

Optional features:

- Holders: general public or restrictions? Wholesale only?
- **Transparency**: full, limited or anonimity of holders.
- **Records of transfers and holdings**: on or off the central bank ledger.
- **Convertibility**: into cash and/or central bank deposits/limits or caps.

CBDCs: possible motivations

- replace physical bank notes.
- monetary policy (reduce the lower bound on interest rates).
- tool to improve financial stability.
- CBDCs with political views may aim to counter privately issued stablecoins.
- Financial inclusion and social policy.
- technology and innovation.
- global geopolitics.
- financial crime prevention.

Principles of a Central Bank Digital Currency (CBDC)

A CBDC is:

• a new form of **Central Bank money** accessible to the general public.

 accepted as a means of payment, legal tender, safe store of value by all citizens, businesses and government agencies.

A CBDC should: • enable cheap, secure and real time transfer of value. • be accessible without a bank account. • be built on an open infrastructure to foster

competition and innovation.

CBDCs are <u>not</u> cryptocurrencies...

CBDCs are centralized, while cryptocurrencies are decentralized:

Cryptocurrencies are established by private entities and supported by numerous distributed nodes that are incentivized through block rewards to maintain the network. CBDCs are normally supported by one central network, driven to serve only the public policy of the sovereign State that issues them. Main differences between CBDCs and cryptocurrencies. To some extent, CBDCs aim to take from cryptocurrencies the convenience and security and combine those features with the major characteristics of the conventional banking system, in which money circulation is regulated and reserve-backed.

But CBDCs may have similarities with cryptos: the digital yuan case.

Use of both online and hardware wallets.

Cryptocurrencies have hardware wallets to securely store private keys off-chain. Similarly, in the design of the DC/EP system, there is a unique feature of hardware chip-card wallets. Even though China's DCEP system is not entirely blockchainbased, it has a few similarities with the technical features of crypto currencies.

The use of two-key architecture to secure transactions.

The People's Bank of China (PBOC) has enabled a unique secure transaction signing system. For some transactions, users have the option to secure and encrypt transaction data by co-signing it along with the user who is a counterparty to the transaction, or the bank.

CBDCs and Blockchain Technology

In general, CBDCs *don't need* Blockchain, but it might be compatible, and useful, to use this technology.

It is considered that blockchain could be useful for wholesale CBDC. In contrast to retail CBDC, wholesale CBDC is limited to commercial banks, clearing institutions or other entities that have traditionally had access to central bank reserve.

China's digital yuan will be operating through a two-tier structure, in which the PBOC issues the digital currency to commercial banks and institutions without the employment of blockchain technology, but the financial institutions could give out the digital yuan to the public through blockchain.

3) Trade Finance.

Regarding the benefits of using blockchain in trade finance, we can cite the fact that it will speed up transaction settlement times, it will increase transparency between all parties, it will reduce costs and it will unlock capital (capital that would be temporarily not available, waiting to be transferred between parties involved in the transaction), while providing payment certainty to sellers, as well as mitigating risks and increasing financing revenues for banks.

Trade finance refers to financial transactions domestic and internationalwhere financial institutions provide credit to guarantee an exchange of goods. Applying blockchain technology to trade finance will help to reduce many inefficiencies, since traditional trade finance processes (e.g., Letter of Credit) are still a resourceintensive operation due to the physical exchange of documents, for this industry has not seen many changes these last centuries despite the world's quick evolution.

4) Smart contracts.

A smart contract is a self-executing contract with the terms of the agreement between buyer and seller being directly written into lines of code. The code and the agreements contained therein exist across a distributed, decentralized blockchain network. The code controls the execution, and transactions are trackable and irreversible.

Smart contracts permit trusted transactions and agreements to be carried out among disparate, anonymous parties without the need for a central authority, legal system, or external enforcement mechanism.

The biggest benefit of smart contracts is the automation that it offers. In simple terms, it means that it is interruption-free, and no third party can make changes in the agreement and decision. This automation can go a long way as it helps organizations to automate certain aspects of their business. Not only that, it resolves issues in some processes where trust is an issue.

Applications of Smart Contracts.





SUPPLY CHAIN MANAGEMENT

Automates supply chain with visibility and transparency, leads to fewer frauds

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INSURANCE

Automates claims and resolves disputes with proof



CLINICAL TRIAL

Offers cross-institutional visibility, automate data share and improves privacy

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ESCROW

Automates escrow amount, authenticates and improves trust



TRADING ACTIVITY

Trades can be automated without the need for intermediaries



MORTGAGE SYSTEM

Automates mortgage and fastens the process

CREATED BY 101BLOCKCHAINS.COM

Smart Contracts Benefits



3.BLOCKCHAIN REGULATION ACROSS THE GLOBE.

Is regulation necessary?

Most countries do not have yet regulations dealing with blockchain specifically.

I am going to focus here on blockchain regulation rather than crypto regulations, even though I will make some reference to the latter.

Hong Kong

The Hong Kong Monetary Authority (HKMA), which acts as Hong Kong's de facto Central Bank, published two White Papers on Blockchain and Distributed Ledger Technology in 2016 and 2017, proving its commitment to the development of blockchain-related solutions in Hong Kong, while acknowledging and identifying several areas of risk.

ASTRI (commissioned by the Hong Kong Monetary Authority), "Whitepaper On Distributed Ledger Technology", 11 November 2016.

Hong Kong Monetary Authority, "Whitepaper 2.0 on Distributed Ledger Technology", 25 October 2017. The White Papers are one of the first documents issued by a regulator in Hong Kong contemplating the legal challenges arising from the use of blockchain. These risks can be summarized in seven categories:

- Validity and enforceability of digitized documents and digital signatures.
 - Data protection and privacy.
- Cross-border and localization issues.
- Validity and enforceability of smart contracts.
- Liability associated with participation in DLT platforms.
- Competition/ anti-trust laws and practices.
- Legal issues in some specific applications, such as trade finance.

As it is common in most jurisdictions, the area that has seemed to catch most of the attention of HK regulators is that of crypto currencies. The regulation of cryptocurrencies though is less comprehensive in Hong Kong than in Singapore, since there is no proper regulation in Hong Kong.

However, no Hong Kong regulator has taken (yet) any enforcement action regarding the use of blockchain. Actually, and this is quite important, regulators encourage organizations to adopt blockchain technology. This interest in encouraging blockchain is another point in common that Hong Kong has with Singapore. Coming back to the two HKMA White Papers, there are three topics covered by those papers that we will go through now: <u>digitally signed contracts, smart contracts</u> <u>and data privacy.</u>

Digitally signed contracts.

As per the Electronic Document Ordinance (Cap. 553), digitally signed contracts are enforceable in Hong Kong, which means that Hong Kong has a legal framework complete enough to support blockchainrelated development (unlike some of the other jurisdictions analysed in this report, whose regulation regarding this area was unclear at best).
Smart contracts.

Even though they are not recognized in any statutes or regulations in Hong Kong, the legal chapter of the White Papers, edited by the Technology Committee of the Law Society of Hong Kong offered an analysis on the legality and enforceability of smart contracts in Hong Kong.

According to the White Papers, a smart contract has the effect of a contract under Hong Kong law. If one of the parties wants to seek contractual remedies and enforce the smart contract as a contract under Hong Kong law, that party must satisfy the common law requirements of the existence of a legally binding contract (offer, acceptance...).

Data privacy. The handling of personal data raises issues regarding legal and compliance provisions. In any area where blockchain-based services collect, use or process personal data from people located in Hong Kong, the Personal Data Privacy Ordinance -PD(P)O- will apply. The PD(P)O establishes several rules to make sure that the personal data gathered by institutions is properly stored, kept no longer than necessary and used only for the right purposes (the institution collecting the data is the "data user", which would include blockchain-based service providers).

The White Papers point out a few features of blockchain that may present challenges under the current PDPO regulation:

Immutability of Stored Data. Data cannot be amended or erased, which contravenes the principle that data need to be stored for no longer than necessary.

Data Localization. Since participants of the blockchain platform may be from anywhere across the globe, their data can be shared with them too. Nevertheless, PDPO Section 33(2) regarding crossborder transfer rules are not in force.

Data Subject Rights. Data subjects have the right to access and correct his data. The problem is, in light of blockchain's nature, every block is unalterable, therefore if a data subject needs to amend his data, a new block will need to be created, chaining the new block with the original one.

Crypto regulation in HK:

Ashley Alder, the CEO of the Securities and Futures Commission (SFC), announced in early November, during the Hong Kong FinTech Week, a proposed new licensing regime for virtual assets trading in Hong Kong, with the launch of public consultation (which was due on January 31, 2021) on legislative proposals designed to enhance anti-money laundering and counter-terrorist funding (AML and CTF) in Hong Kong.

Hong Kong will regulate all cryptocurrency trading platforms operating in the financial hub, changing its previous opt-in approach. All cryptocurrency trading platforms that operate in the Special Administrative Region, or target investors there, will need to apply for an SFC license. According to Ashley Alder's speech, "successful applicants would be subject to expectations covering their financial resources, experience and the soundness of their business and risk management".

The operators must make sure there are no retail investors trading on their platforms, which should only be available to professional investors who have over HK\$8 million (\$1m) in assets, according to Clara Chiu, director of licensing and head of the FinTech Unit of the SFC.

The new regulations will cover all types of virtual assets' trading platforms operating in Hong Kong, as well as overseas platforms targeting local investors. Related to this, the FinTech Association of Hong Kong, in his Response to the Public Consultation on Legislative Proposals to Enhance Anti-Money Laundering and Counter-Terrorist Financing Regulation in Hong Kong (February 1, 2021), welcomed the continued endeavors of the Financial Services and the Treasury Bureau (FSTB) to enhance anti-money laundering and counter-terrorist financing (AML/CTF) regulation in Hong Kong.

The association considered, among many other things, that "a balanced approach should be taken that serves to mitigate the risks of financial crime and which protects Hong Kong persons, but also which does not unnecessarily impose restrictions on doing business in Hong Kong. We do feel however that the current legislative proposals require further calibration to more appropriately balance these factors". To me, the proposed regime will be mostly beneficial, since it will put everyone in a level playing field and will give investors a safety net, thus helping the digital asset market to grow in the long run by giving investors more confidence in this new asset class.

However, excluding retail investors from accessing virtual asset services in Hong Kong does not seem a good solution. This segment represents a significant portion of the market, and, more importantly, this investor groups is the one that, due to its nature, precisely needs more regulatory protections. As stated by the FTAHK, "to willfully allow such activity to be driven offshore, and potentially towards unregulated venues, does not feel in our opinion to be in the best interest of the investing public." Therefore, retail investors should, in my opinion, be allowed to access virtual asset services.

Mainland China.

Beijing's approach toward blockchain and cryptocurrencies seems much clearer now: It is encouraging Chinese companies to seize the opportunity offered by blockchain technology, while it is adopting a tough approach on virtual-currency trading platforms.

In October 2019, President Xi gave a speech saying China needs to "seize the opportunities" presented by blockchain, in what appeared to be one of the first instances of a major world leader backing the tech.

President Xi said blockchain is an "*important breakthrough in independent innovation of core technologies.*"

Having all this in mind, is Mainland China's attitude toward the Digital Yuan and crypto currencies consistent? Yes, it is. China is promoting its Digital Yuan while adopting a tougher stance on crypto currencies, but, as I said before, there is no contradiction in that, since CBDCs are not cryptos.

When it comes to crypto currencies, in recent years, especially since September 2017, the Government has taken a series of regulatory measures to crack down on activities related to crypto currencies, mainly due to the concern over financial risks associated with such assets.

For example, the practice of raising funds through initial coin offerings (ICOs) is completely banned in China. On September 4, 2017, seven Chinese central government regulators – the People's Bank of China (PBOC), the Cyberspace Administration of China (CAC), the Ministry of Industry and Information Technology (MIIT), the State Administration for Industry and Commerce (SAIC), the China Banking Regulatory Commission (CBRC), the China Securities Regulatory Commission (CSRC), and the

China Insurance Regulatory Commission (CIRC)- jointly issued the Announcement on Preventing Financial Risks from Initial Coin Offerings (ICO Rules) for purposes of investor protection and financial risk prevention.

Under the ICO Rules, ICOs that raise cryptocurrencies, such as Bitcoin and Ethereum, through the irregular sale and circulation of tokens are essentially engaging in public financing without official authorization, which is illegal.

Also, the ICO Rules impose restrictions on the primary business of cryptocurrency trading platforms. According to the ICO Rules, the platforms are prohibited from converting legal tender into cryptocurrencies, or vice versa. They are also prohibited from purchasing or selling cryptocurrencies, setting prices for cryptocurrencies, or providing other related agent services. Furthermore, the ICO Rules prohibited financial institutions and non-bank payment institutions from directly or indirectly offering services for ICOs and cryptocurrencies, including opening bank accounts or registration, trading, clearing, or liquidation services.

Nevertheless, it is not illegal to hold Bitcoins and other cryptocurrencies or even to buy or sell them in China. No PRC law or regulation prohibits Chinese investors from holding cryptocurrencies or trading crypto currencies.

This seems to be consistent with an early notice jointly issued by five Chinese government agencies led by PBOC back in 2013, which defined Bitcoin as a special virtual commodity, but not a currency.

United States.

The US Government has shown thus far some (limited) support for the development of Blockchain regulation and governance. The US Congress created the Congressional Blockchain Caucus, which, according to their statement, "believe in the future of blockchain technology, and understand that Congress has a role to play in its development. As a Caucus, we have decided on a hands-off regulatory approach, believing that this technology will best evolve the same way the internet did; on its own." Congressional Blockchain Caucus (US).

In September 2018, the Congressional Blockchain Caucus' Co-Chair and US Representative for Minnesota's 6th congressional district, Tom Emmer, introduced the "Resolution Supporting Digital Currencies and Blockchain Technology" bill, the "Blockchain Regulatory Certainty Act" and the "Safe Harbor for Taxpayers with Forked Assets Act."

Congressman Emmer's legislation has been later complemented by U.S. Representatives Darren Soto and Ted Budd through the introduction of "The Virtual Currency Consumer Protection Act of 2018" and the "U.S. Virtual Currency Market and Regulatory Competitiveness Act of 2018." More recently, in early October 2020, Representatives David Schweikert and Darren Soto submitted the Blockchain Records and Transaction Act of 2020, similar to the one introduced in 2018 which never came up for a vote. According to a statement issued by the authors, this act, if passed, would recognize digital signatures on the blockchain as enforceable by law, which is important for the enforceability of smart contracts.

Despite these and other State-level pieces of legislation, the regulation of Blockchain in the US is still quite reduced. However, some public administrations have started to implement blockchain technology (for instance, in late 2018, the U.S. Food and Drug Administration - FDA- and Federal Trade Commission -FTC- adopted several standards through the use of Blockchain to increase food safety).

4.BLOCKCHAIN IN BANKING: THE ROLE OF DLT IN FINANCIAL SERVICES. POTENTIAL USE CASES AND POSSIBLE BENEFITS.

A) Trade finance.

Trade finance makes reference to financial transactions (domestic and international) where financial institutions provide credit to guarantee an exchange of goods.

Applying blockchain technology to trade finance will help to reduce many inefficiencies, since traditional trade finance processes (e.g., Letter of Credit) are still a resource-intensive operation due to the physical exchange of documents, for this industry has not seen many changes these last centuries despite the world's quick evolution. The use of blockchain could solve many of these issues.

Trade finance plays a critical role in supporting the real economy, since it provides the financial instruments that facilitate cross-border trading. As per the statistics provided by the World Trade Organization (WTO) in its report "Trade finance and SMEs: Bridging the gaps in provision" (2016), around 80% of global trade is supported by some sort of financing or credit insurance, even though "*a lack of trade finance is a significant non-tariff barrier to trade, particularly (but not exclusively) in developing countries".* WTO, "Trade finance and SMEs: Bridging the gaps in provision" (2016).

The fact that conventional trade finance still works on a paper-based mode of operations can be considered both inefficient and cumbersome. Furthermore, the conventional system of trade financing shows a clear lack of integration.

When we talk about lack of integration, we refer to the fact that all parties involved in a trade finance transaction (importer, exporter, shipper, insurer, bank...) have their own databases, which record the transaction independently. This causes duplication of information and, if there is any error or change to be made, amendments will need to be made by all the parties involved, independently. These last few years, several solutions and consortia have been launched in order to explore the advantages of Blockchain in trade finance, having most of these solutions a worldwide reach.

As stated in Cognizant's report <u>"How Blockchain can revitalize</u> <u>Trade Finance (Part 1)" (2017)</u>, blockchain's benefits impact three fields in trade finance:

- By providing payment certainty to sellers by automating payment methods. For instance, a letter of credit can be modelled as a selfexecuting contract on blockchain.

- By providing delivery assurance to buyers through trade asset tokenization. By using blockchain, the trade asset can be digitized through crypto tokens.

- By mitigating risks and increasing financing revenues for banks through payment instrument digitization. Banks face many challenges when it comes to detecting deviations and ensuring compliance because of limited availability of trade information, the high cost of manual screening required... Payment instruments, being essentially credit instruments, can be directly issues as native assets on a blockchain network, thus preventing fraudulent invoicing practices.

Cognizant, "How Blockchain can revitalize Trade Finance (Part 1)" (2017). The International Chamber of Commerce (ICC) released in July a report that shares findings from its 11th annual Global Survey on Trade Finance. It is based on exclusive information from nearly 350 respondents in more than 80 countries, including contributions from an international array of experts from the Asian Development Bank (ADB), AUSTRAC, Boston Consulting Group (BCG), Coriolis Technologies, HSBC, Kountable, SWIFT and TXF.

According to the report, the survey's results show that banks are turning to technology to modernize their trade finance business, with 77% of the banking respondents considering transitioning to digital to grow their business.

However, the survey shows a clear divide between banks. While 83% of global banks indicated that they had a digital strategy for trade finance, only 46% of local banks had one, showcasing that smaller banks with limited resources are struggling to keep up.

Moreover, only 22% of respondents indicated that their banks were integrating DLT- based solutions in their trade finance operations, implying that DLT might still be only applied to pilot transactions and proofs of concept (PoCs).

That being said, despite the current limited lack of integration of blockchain-based solutions in the banks' trade finance operations, the sector is booming. Many platforms have been mentioned throughout this report, platforms that, in most cases, are actual gamechangers.



What options is your bank considering for its trade finance model? Source: ICC Global Survey in Trade Finance (2020).

A.1) Trade finance in Hong Kong.

After analysing the potential benefits of using blockchain in trade finance in the 2016 White Paper, the HKMA formed a working group involving five leading banks (Bank of China Hong Kong Limited (BOCHK), the Bank of East Asia Limited (BEA), Hang Seng Bank Limited (HASE), the Hongkong and Shanghai Banking Corporation Limited (HSBC) and Standard Chartered Bank Limited (SCB), which commissioned Deloitte to develop a blockchainbased prototype.

The objective of said prototype was to evaluate the feasibility of the technology and its commercialization potential.

This proof-of-concept was the stepping stone of the blockchain-based trade finance **eTradeConnect platform,** which is considered to be a leading platform in the Asia Pacific Region. Following the success of the 2016 proof-of-concept, analysed in the White Papers, this new LDT-based platform was developed to replace the paper-based trade finance system.

TradeConnect was developed in collaboration with 12 banks in Hong Kong (Australia and New Zealand Banking Group, Bank of China, BEA, Hang Seng Bank, HSBC, Standard Chartered, Agricultural Bank of China, Bank of Communications, BNP Paribas and Shanghai Commercial Bank).

Four are the main benefits of using eTradeConnect, as stated in their website:

- Reducing costs and dispensing with the inefficient paper-based process.
- Speeding up the process of obtaining working capital from banks.
- Witnessing a revolutionary change in trade financing.
- ✓ Facilitating applications of trade financing to banks for open account trades.

In November 2019, the eTradeConnect platform successfully completed a proof-ofconcept. In the same month, the HKMA announced the signing of an agreement with the People's Bank of China to conduct a test of a blockchain project to improve their trade finance operations. The trial aims to link eTradeConnect and the PBOC's Trade Finance Platform. Related to this, the People's Bank of China, alongside the China Banking Regulatory Commission, the China Securities Regulatory Commission and the Foreign Exchange Bureau, proposed in May 2020 a blockchain-based trade finance platform to cover the whole Greater Bay Area. In this document, the four organizations emphasized the importance of global trade and finance.

People's Bank of China, "中国人民银行中国银 行保险监督管理委员会中国证券监督管理委员 会国家外汇管理局关于金融支持粤港澳大湾区 ▶ 建设的意见, 14 May 2020.

B) Payments.

By establishing a decentralized channel (e.g. cryptos) for payments, banking institutions could leverage emerging technologies to facilitate faster payments and lower the fees of processing them.

By offering higher security and lower cost of sending payments, banks can introduce a new level of service, bring new products to the market, and finally be able to compete with innovative fintech startups.

> Besides, by adopting blockchain, banks will be able to cut down on the need for verification from third parties and accelerate the processing times for traditional bank transfers.

C) Clearance and Settlement Systems.

Distributed ledgers can reduce operational costs and bring us closer to real-time transactions between financial institutions.

Moving money around the world is a logistical challenge to many banks. A simple bank transfer needs to bypass a complicated system of intermediaries, such as custodial services, before it reaches its destination. Furthermore, the bank balances need to be reconciled across the global financial system, which comprises a broad network of funds, asset managers, traders, and more.

The centralized SWIFT protocol processes only the payment orders. The actual money is processed through a system of intermediaries. Each of them involves an additional cost, and the process is time-consuming.

D) Customer KYC and Fraud Prevention.

By saving customer information on decentralized blocks, blockchain technology can make it easier and safer to share information between financial institutions.

Blockchain can help reduce the human effort and other costs involved in KYC compliance. With KYC customer information stored on a blockchain, the decentralized nature of the platform would allow all institutions that require KYC to access that information. Using blockchain for KYC purposes could reduce personnel requirements for banks by 10%, equating to cost savings of up to \$160M annually.

Aside from being a time-consuming process, complying with KYC rules also costs banks money.

E) Securities.

By tokenizing traditional securities such as stocks, bonds, and alternative assets — and placing them on public blockchains — blockchain technology could create more efficient and interoperable capital markets.

Furthermore, by removing the middleman and asset rights transfer, blockchain lowers the asset exchange fees and reduces the instability of the traditional securities market.

To buy or sell assets like stocks, debt, and commodities, it is necessary to keep track of who owns what. Financial markets today accomplish this through a complex chain of brokers, exchanges, central security depositories, clearinghouses, and custodian banks. These different parties have been built around a system of paper ownership that is not only slow but can be inaccurate.



F) Loans and Credit.

Traditional banking institutions underwrite loans by using a system of credit reporting. Banks that process loan applications evaluate the risk by looking at factors such as credit score, homeownership status, or debt to income ratio.

With a cryptographically secure, decentralized registry of historical payments, consumers could apply for loans based on a global credit score.

Blockchain-enabled lending offers a more secure way of offering personal loans to a larger pool of consumers and would make the loan process cheaper, more efficient, and more secure.

G) Fundraising.

Raising money through venture capital may be a long process.

In contrast, some companies are raising funds via initial coin offerings (ICOs), powered by public blockchains like Ethereum and Bitcoin.

> In initial coin offerings (ICOs), entrepreneurs raise money by selling tokens or coins, allowing them to fundraise without a traditional investor or VC firm (and the due diligence that accompanies an investment from one).

H) Accounting and Auditing.

Accounting has been a relatively slow area to digitize. One of the reasons behind that is the need to match the strict regulatory requirements regarding data integrity and validity. That is the reason why accounting is potentially another area that could be transformed with blockchain.

Blockchain will simplify compliance and streamline the traditional double-entry bookkeeping systems. Instead of keeping separate records based on transaction receipts, businesses can add transactions directly into a joint register. All the entries in the register will be distributed.

As a result, the records will be more transparent and secure. A blockchain would work like a digital notary who verifies all the transactions. Blockchain smart contracts could be used in such applications to pay for invoices automatically as well.

I) P2P Transfers.

P2P transfers allow customers to transfer funds from their bank accounts or credit cards to another person online. Currently, there are many P2P transfer applications available on the market.

All these problems can be addressed with blockchain, which will help decentralize applications for peer-to-peer transfers. Since blockchain has no geographical limitations, it enables P2P transfer across the entire globe. Furthermore, blockchain-based transactions will take place in real time. Nevertheless, some of them allow to transfer money only within a certain geographical region, whereas others do not allow to transfer money if both parties are in the same country. Besides, P2P services may charge substantial fees for their services and may not be secure enough for storing sensitive customer data.

5.CONCLUSIONS.

Blockchain is undoubtedly changing the world for the better, having become the technology likely to have the greatest impact on the future of the world economy.

Its applications go much beyond crypto currencies. Blockchain can be helpful in areas as diverse and relevant as trade finance, healthcare, insurance...

When it comes to the use of Blockchain in Banking, to make the most of blockchain, banks ought to develop first the infrastructure required to operate a global network using matching solutions. Only a widespread adoption of blockchain will lead this technology to disrupt the sector.

But the investment will come with significant returns. Once fully adopted, blockchain is expected to enable banking institutions to process payments faster and more accurately, all the while reducing transaction processing costs. Overall, blockchain-enabled banking applications will deliver a better customer experience and help traditional banking institutions to compete with fintech startups.

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Thank you!



Blockchain in Banking: Possible Use Cases and Benefits.

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