Chinese leadership in digitizing the national currency

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Abstract:

This study aims to highlight the role of Chinese experience in pioneering the digital financial revolution through the issuance of the digital currency of the central bank, and to highlight the reasons behind this. We used the descriptive analytical approach to identify the basic concepts of the central bank digital currency, strengths and weaknesses, determine the technical characteristics of the digital Renminbi, factor and reasons analysis for China's leadership in this financial technology.

We finished this by showing the most important results, which are the availability of digital innovation and the data revolution. Outstanding Progress puts China in a good position to issue the first Central Bank Digital Currency (CBDC). And an acceleration of the implementation process by CBDC is due to be part of its push to internationalize the Yuan, reduce dependence on the dollar-dominated payment system, and blunt the impact of any sanctions or threats of exclusion both on a country and on a company.

Keywords: China, E-RMB, Central Bank, Digital Currency, Electronic Payment.

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Introduction:

Money plays an important role in the economic system, whatever its shape (metal coin, or a piece of paper or plastic cards, or a digital). It derives its value from its functions: as a medium of exchange, a unit of measurement, and a storehouse for wealth. For the purposes of this article, the terms "money" and "currency" are interchangeable, with money being the physical (material) manifestation of money.

With technological advancement, the form of money has evolved to what is known as a virtual currency, such as Bitcoin, which represents an innovation in financial services products and technology that has the potential to make global trade more efficient and transparent. Bitcoin may decrease transaction costs for businesses and emerge as a key form of electronic payment processing since it does not rely on intermediaries.

The threat has become more real as the public adoptions of virtual money have raised. Central banks fear losing control of the global payment's system to cryptocurrencies, which are typically not controlled by any central body - or to private entities that could weaken central banks' grip on money supply, one of the main avenues for steering economies.

Some central banks, such as the People's Bank of China, have begun to investigate the possibility of issuing their own digital currencies. This research has been driven by Chinese nationals turning increasingly to cryptocurrencies (in particular, Bitcoin) for speculation and to dodge capital controls outside Chinese borders. Most importantly, According to Beijing, cryptocurrencies have the potential to replace money printing and capabilities.

The Chinese response was to be savvy enough to convert the best aspects of cryptocurrencies to serve the state's goals. So: What are the hidden goals of the Chinese state behind accelerating the adoption of the central bank's digital currency? And We will ask the following sub-questions:

1. What is the digital currency of the central bank?
2. What are the benefits of the Central Bank's digital currency over other methods of payment?
3. What are the causes behind China's swift adoption of the central bank's digital currency on a global and regional scale?

To try to answer these questions, two hypotheses have been issued:

Hypothesis 1: The digitalization of the Chinese yuan might hasten the currency's use in international transactions.

Hypothesis 2: The digitization of the Chinese yuan is dependent on technological ability and the speed with which Chinese customers adopt new payment methods.

This study aims to examine the growth of China's central bank digital currency (CBDC) in the context of shifting geopolitical, geostrategic, and technical landscapes It shows how the digital yuan has moved from concept to pilot stage, particularly in the last year while the globe battled with the pandemic's health and economic consequences, and an analysis of the most important local and international factors driving the adoption of national currency digitalization at a faster pace..

The descriptive approach was used to present the concept of the central bank's digital currency, to highlight the digital currency's strengths, weaknesses, and advantages, as well as the technical characteristics of the Chinese digital currency, and analytical approach in analyses the way the launch of China's CBDCs. and the most important reasons and motives for conducting extensive experiments on it**.**

In order to answer the problem, we decided to systematically divide this research paper into four main axes, as follows:

Firstly: Study Literature Review

Secondly: Basics about Central Bank Digital Currency (CBDC).

Third: China is shifting to digital Renminbi (e-RMB).

Fourthly: The reasons behind the digitization of the currency.

1. Study Literature Review

The concept of a central bank digital currency is not entirely novel; It was proposed as a study by many researchers, including Tobin (1985), (1985), "*Financial innovation and deregulation in perspective*", Then the studies continued with Jan Smets. (December 9, 2016). »*Fintech and the Future of Retail Banking*", The researcher emphasized in the paper that the distributed ledger technology bears the promise to issue a

Sovereign digital currency, this could provide central banks a tool to solve for the lower bound problem; however, might as well end up

impairing financial stability, thereby undermining monetary policy efficacy instead. The Committee on Payments and Market Infrastructures (CPMI) and the Markets Committee (MC) undertook complementary studies on the consequences of issuing a central bank digital currency in response to rising demand from central banks, the business sector, and the public (CBDC), and the recent debate has been fueled by a variety of factors. Among these are (Infrastructures Committee on Payments and Market, 03/2018, p. 3):

- Interest in technological innovations for the financial sector - Fintech -; the emergence of new entrants into payment services and intermediation;
- Declining use of cash in a few countries;
- Increasing attention to so-called private digital tokens.

Sinelnikova-Muryleva. (2020). "Central bank digital currencies: Potential risks and benefits" .the paper discusses various types of CBCDs Potential hazards and advantages related with CBDC emission, as well as its implications for the banking sector and monetary policy, At the same time, if properly designed, CBDCs have the potential to become a new useful weapon for monetary authorities.

Stewart Paterson, (July 2020). The digital Yuan and China's potential financial revolution: A primer on Central Bank Digital Currencies (CBDCs), This paper explains how a CBDC could operate domestically; in terms of law enforcement, and in improving economic management through avenues such as surveillance of the shadow banking system, fiscal tax raising power, and more efficient pass through of monetary policy. specifically, the impact it could have on the Chinese economy and society. It also looks at the possible international implications for trade. Joel Slawotsky.(2020), "US financial hegemony: the digital Yuan and risks of Dollar de-weaponization ", This paper explains This article examines the development of China's CBDC while placing it in the broader context of the changing geopolitical, geostrategic, and technological landscape. It traces how the digital yuan has progressed from research and development to the pilot stage – particularly in the past year as the world grappled with the health and economic repercussions of the pandemic.

These studies give the theoretical basis for analyzing China's efforts to internationalize the e-yuan as a credit and trade transactional currency through promoting the Belt and Road Initiative, Our research varies from earlier research in that it proposes a medium- to long-term

scenario for China's currency digitization in the context of increased geopolitical conflict and the cracking of the global financial system.

2. Basics about Central Bank Digital Currency (CBDC)

Central bank digital currencies (CBDC) are digital tokens issued by central banks. In a way, they are the digital version of cash; their value is guaranteed by a central bank.

2.1 Definition of the Central Bank's Digital Currency (CBDC)

CBDC is not a well-defined term. It is used to refer to a number of concepts. Most people, however, see it as a new type of central bank money. That is "It is a tokenized, digital representation of a sovereign currency. It may be distributed by a monetary authority, a case in which it is a central bank digital currency (CBDC), in which it is often backed by central bank money, becoming e-money". (ITU, 06/2019, p. 7)

CBDCs are the digital version of cash. They would provide holders a direct claim on the central bank, bypassing commercial banks, similar to banknotes or coins. They would be as "risk-free" as traditional money and allow holders to make online payments if they were backed by central banks. (Wilson & Canepa, 2021).

The Bank of England has described the CBDC as electronic CB money that: (i) can be accessed more broadly than reserves. (ii) Potentially has much greater functionality for retail transactions than cash. (iii) Has a separate operational structure from other forms of Central Bank money, allowing it to potentially serve a different core purpose. (v) Under reasonable assumptions, they can be interest bearing, paying at a rate that differs from the rate on reserves.

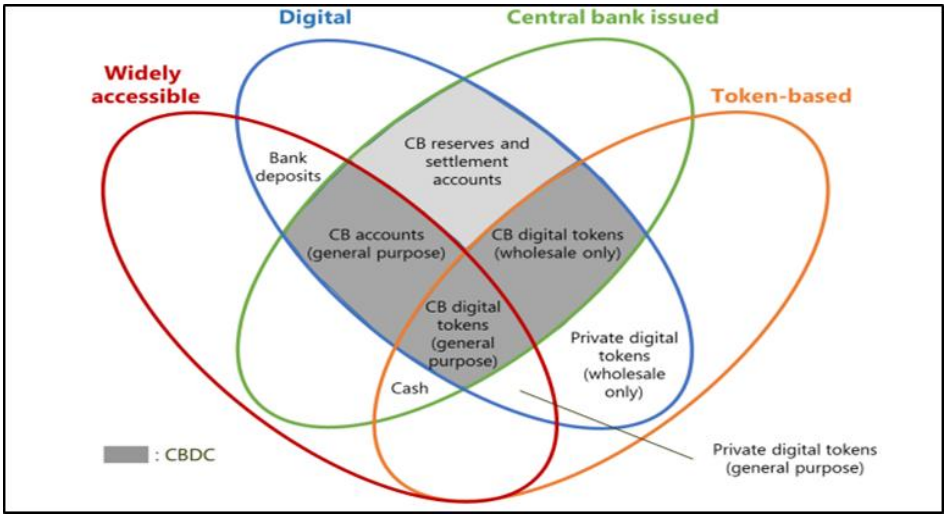
2.2. The Central Bank's Digital Currency (CBDC) Taxonomy

A classification of money based on four main characteristics: the issuer (central bank or other), the form (electronic or physical), the accessibility (universal or limited), and the transfer method (centralized or decentralized). A CBDC is defined by the taxonomy as an electronic form of central bank money that can be exchanged in a decentralized manner known as peer-to-peer--the new technology has the potential to provide anonymity features similar to cash but in digital form, meaning that transactions occur directly between the payer and the payee without the need for a central intermediary. (Linnemann & Rodney, 17/09/2017, p. 56)

This sets CBDC apart from other types of electronic central bank money, such as reserves, which are traded centrally between accounts at the central bank. Furthermore, the taxonomy distinguishes between two

types of CBCC: a generally available, consumer-facing payment instrument geared toward retail transactions, and a restricted-access, digital settlement token geared toward wholesale payment applications.

Figure N° 01: The money flower: a taxonomy of money



Source: Bech Morten Linnemann, Garratt Rodney.(17 /09/2017). "Central bank cryptocurrencies". BIS Quarterly Review, P60.

The Venn diagram, which we call the money flower, shows how the two potential types of CBDC fit into the overall monetary landscape. In principle, there are four different kinds of electronic central bank money: two kinds of CBDC - peer-to-peer - One is accessible to the general public (retail CBDC) and the other is available only to financial institutions (wholesale CBDC), and two kinds of central bank deposits. The most well-known types of central bank deposits are those held by commercial banks – sometimes known as settlement accounts or reserves – and those held by the general public, at least in principle.

Accordingly, on the topic of our research, we will devote our studies to the retail central bank's digital currency (CBDC)

2.3. Central Bank Digital Currency design and implementation trade-offs

There are design features that will determine how a CBDC may serve as a means of payment and a store of value. These choices will have implications for payments, monetary policy and financial stability. Below are the most major CBDC design possibilities that have been identified thus far. (The World Economic Forum, 03/2019, p. 10)

• **Availability**: Should the CBDC be available to public use (retail CBDC), or restricted for commercial banks and clearing houses (wholesale)? Who is the CBDC's main target audience: retail customers and citizens, or commercial banks?

• **Distribution and storage**: If CBDC is for retail use, what is the distribution mechanism that is most effective, achieves the program's goals, and is the most inclusive to capture all eligible participants? Further, where will the CBDC be held? CBDC can be held in central bank accounts, participating commercial bank accounts if those institutions function as distribution middlemen, or government-issued debit cards, among other options.

• **Interest payments**: Should the central bank pay CBDC holders, whether retail or wholesale, interest? This decision has implications for the relative attractiveness of holding the CBDC. (ITU-T, 07/2019, p. 10) It has an impact on whether depositors opt to save in CBDC with the central bank or in regular commercial bank deposits in the retail environment. This, in turn, has an impact on the amount and stability of commercial bank deposits, as well as the balance sheets and lending activities of those banks. CBDC interest payments will compete with those of commercial banks, potentially pressuring commercial banks to raise their interest payments to depositors. For both retail and wholesale CBDC, implications affecting monetary policy, whether deliberate or inadvertent, must be carefully studied and are the subjects of much existing research.

• **Transaction anonymity**: Should CBDC transactions preserve customer privacy? Anonymity would entice more people to utilize CBDC as a private, peer-to-peer currency substitute. It does, however, make it more difficult to reverse fraudulent transactions, detect illegal behavior, and recover stolen cash. Of note, if a central bank has as strong motivation to employ CBDC for anti-money laundering, anti-corruption or tax evasion, or capital control and monitoring purposes, Anonymity will be less likely to be allowed (at the cost of discouraging adoption). Those who want to participate in unlawful or criminal behavior will continue to utilize cash and other alternatives (as well as future privacy-enabling cryptocurrencies) unless the central bank or state forces them to.

• **Account and transaction volume limits**: Should central banks limit the amount of CBDC that can be held or transferred at one time? Implementation and money-laundering concerns can both be mitigated

by such restrictions. In the case of retail CBDCs, the central bank may impose restrictions.

2.4. Central bank digital currency (CBDC): key benefits and downsides

There are several studies on the implications of adopting a digital currency for the central bank (see: (Engert & Fung, 2017), (Ward & Rochemont, 03/2019), (Duffie, D and A Krishnamurthy, 2016), (Tommaso, et al., 11/2018), and (Lagarde, 2018)

The table below summarizes the benefits and downsides of the retail CBDC. (The World Economic Forum, 03/2019)

Table N° 01: Retail CBDC benefits and downsides

Pros	Cons
Potential for faster and cheaper domestic and cross-border payments (both retail and wholesale)	Notable risks to financial stability from bank disintermediation or other forces
Potential to offer retail depositors safer savings venue (i.e., accounts with the central bank) with lower risk of default or loss of funds than storing savings in domestic commercial bank accounts (varies by country)	Relative to physical cash, introduces noteworthy consumer privacy and protection risks
Potential to provide alternative to private sector digital payments technologies, to counter operational risk or monopolistic control by those providers if they become dominant, and to serve as a government-issued alternative for cash if it becomes scarce in the future	Block chain technology challenges: transaction scalability; user experience; key management; Confidentiality and transaction speeds.
Potential to incentivize participation in banking sector for the under-banked	Introduces unknown risks
Potential to improve AML/KYC functionalities and to reduce tax evasion, corruption and illicit activities (often not a primary area of focus for a central bank)	Potential for sovereign to have greater access to appropriate citizen funds (for any form of money custodies with the central bank)
Potential to challenge commercial bank monopoly power of retail deposits; can pressure commercial banks to increase interest rates to depositors and provide more financial services; may also be a risk to financial system stability	Potential for financial exclusion if populations who do not adopt CBDC are not integrated and are further marginalized from digital payment systems
Potential to reduce frictions and costs associated with physical cash storage, transport and management within the banking system	

Source: The World Economic Forum. (03/2019). Central Banks and Distributed Ledger Technology: How are Central Banks Exploring Blockchain Today? Geneva: World Economic Forum. p. 9.

Policymakers and academics must carefully examine the risks and drawbacks of implementation in the context of the given nation, and measure advantages against risks and drawbacks. Interest payments on CBDC, as well as account and transaction size restrictions, must all be taken into account.

3. China is shifting to the digital Renminbi (e-RMB)

The Renminbi (RMB) is the official name for the currency of the Communist People's Republic of China, which was established in 1949. It means "the people's currency". It is issued by the People's Bank of China-the monetary authority of China-while Yuan is the name of the primary unit of RENMINBI, but the word is also used to refer to the Chinese currency generally, especially in international contexts. The ISO code for the RENMINBI is CNY, an abbreviation of "Chinese Yuan" as it is often referred to in international finance. The currency symbol is ¥, but because it is shared with the Japanese yen, CN¥ is sometimes used.

3.1. Renminbi internationalization

A variety of currencies circulated in China during the Republic of China, most of which were denominated in the unit Yuan. Each was distinguished by a currency name, such as the" FABI", the "gold Yuan", and the "silver Yuan".

The People’s Bank of China introduced the RMB in December 1948, about a year before the establishment of the People's Republic of China. It was issued only in paper money form at first, and replaced the various currencies circulating in the areas controlled by the Communists, Yuan. Also denominated in Yuan, this currency was identified by "People's Currency", or "RENMINBI", from June 1949. a revaluation occurred in 1955 at the rate of 1 new Yuan = 10,000 old. ("Overview Of The First Set Of Renminbi In The People's Republic Of China, 2005)

Until 2005, the value of the RMB was pegged to the US dollar. As China pursued its transition from central planning to a market economy and increased its participation in foreign trade, the RMB was devalued to increase the competitiveness of Chinese industry. It has previously been claimed that the RMB's official exchange rate was undervalued by as much as 37.5% against its purchasing power parity. (Lipman, 2011)

However, recent Chinese government appreciation efforts, as well as quantitative easing policies by the US Federal Reserve and other

major central banks, have led the RMB to fall to within 8% of its equilibrium value by the second half of 2012. (Howard, 2012)

Since 2006, the RMB exchange rate has been permitted to fluctuate within a tight band around a set base rate calculated using a basket of foreign currencies. The Chinese government has declared that the exchange rate would be made more flexible over time. As a result of the rapid internationalization of the RMB, it became the world's 8th most traded currency in 2013, 5th in 2015, but 6th in 2019.

On 1 October 2016, The RMB became the first emerging market currency to be included to the IMF's special drawing rights basket (the basket of currencies used by the IMF) (reserve currency), demonstrating confidence in China's currency. Furthermore, the US dollar's formerly near-monopoly of reserve holdings is eroding as central banks expand their holdings of Yuan, Euros, and Yen. (Slawotsky, 2020, p. 60)

Another aspect of the move away from the USD is the increasingly popular movement towards Yuan-denominated debt. Referred to as "Panda bonds", Yuan denominated debt is generally acquired by "institutional investors, including companies, foreign banks, multilateral institutions and sovereigns, who see them as reliable investment options that could generate steady returns, besides helping boost economic development worldwide through the Belt and Road Initiative, and maintaining global economic stability." (Jia, 17/06/2019)

Furthermore, even before the launch of a digital Yuan, the new Chinese-led IFIs are gradually shifting loans away from pure USD financing, and usage-based commercial transactions are being negotiated in Yuan: BHP Group, the world's largest listed miner, announced that it has made its first Yuan-denominated iron ore sale to China. (Slawotsky, 2020, p. 59)

In October 2019, China's central bank, the PBOC, announced that a digital RMB was going to be released after years of preparation. The currency, also known as DCEP (Digital Currency Electronic Payment), is based on cryptocurrencies that may be "decoupled" from the banking system, allowing tourists to experience the country's growing paperless lifestyle.

3.2. Circumstances of issuing the digital Yuan (E-RMB)

The emergence of a cryptocurrency such as Bitcoin, which was released in 2009, is based on a techno-utopian vision of a decentralized

global currency that would provide anonymity and security, while allowing users to subvert the established financial system and its gatekeepers. Underpinning this technology is the blockchain. (Peters, Green, & Yang, 2020)

Despite China being the birthplace of some of the most popular projects in the space (Neo, TOP Network, Waltonchain, etc.) and dominating the Bitcoin mining landscape, Chinese officials issued a formal warning against companies participating in cryptocurrency activity back in December 2019.

On the other hand, the Chinese government has been extraordinarily active in its implementation of blockchain technology, with the goal of beating competitors like Bitcoin and Facebook Libra. Where A team within its central bank started hammering out the details of the project "Digital yuan" in 2014. As China has made explicit, cryptocurrency poses a threat to the sovereignty of China, insisting that digital currencies should only be issued by governments and central banks.

The Covid-19 pandemic has accelerated an ongoing shift among younger populations away from cash -cash represents some 7% of gross domestic product in circulation- towards digital payments. Around 73 % of Chinese internet users used online payment services by the end of 2018. (up from 18 percent in 2008). According to the World Bank, 85% of Chinese people who purchased something online also paid for it. (Deutsche Bank Research, 02/ 2021, p. 16) The former president of the Bank of China, Li Lihui, argued that a digital currency's efficiency, cost-effectiveness, and convenience would make it especially desirable during an epidemic.

China has the best digital retail payment system, which is run by the Alipay and Wechatpay duopoly. To avoid disintermediation, (Poenisch, 2020), China has also filed 130 patent applications ranging from issuance, circulation to application, installing a complete supply chain to launch the digital currency (Jahn & Müller, 2020).

Commercial companies in China have agreed to pay the central banking institution a 100 percent reserve to ensure that the virtual currency does not become oversold. (Poenisch, 2020).The circulation of the Digital Yuan goes from the PBOC to the public via local banks or financial institutions. (Fries, 2021)

China's national digital currency, Digital Currency Electronic Payment (DC/EP), will be built with Blockchain and Cryptographic technology. This revolutionary cryptocurrency could become the world's first (CBDC) as it is issued by the state bank, the People's Bank of China (PBOC).

3.3. Definition, objectives of E-Yuan

The PBOC issues E-CNY, which is a digital counterpart of fiat money that is operated by approved operators. It's a hybrid payment instrument that's value-based, quasi-account-based, and account-based, with legal tender status and loosely-coupled accounts.

The central bank's goals must be met when a CBDC is issued. Where the objective is supposed to be:

- CBDC will be used to replace all forms of money, not just cash. Eliminating private commercial bank money would be the most major step. Any claim against the PBoC would constitute a claim against the PBoC.

- Banks will lose their ability to create money and will become only intermediaries for public funds. As agents, they may keep track of accounts and gather data. This will provide authorities with complete traceability, or "controllable anonymity."

- CBDC will be used to fund bank accounts, make bank transfers, and make payments, bringing business to banks while competing with Alipay and WeChatPay.

"*The currency's aim and objectives are to enhance the RMB's circulation and worldwide reach, with the ultimate goal of making the RMB a global currency like the US Dollar.*"

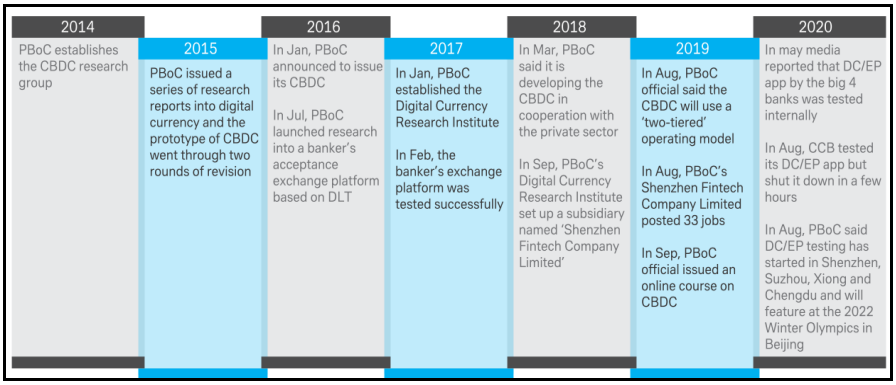
3.4. History and development of digital currency/electronic payment (DCEP)

DCEP's development began in 2014 with the founding of a research institution specialized to digital currencies (in 2017), with the goal of improving the Chinese Yuan system using blockchain technology. However, during 2014 to 2018, the development process slowed down, probably because the decentralized nature of Bitcoin or the blockchain is incompatible with the nature of the Renminbi as a legal national currency. Things rapidly picked up towards the end of 2019, However, this was directly linked to Facebook's preparations for the

launch of Libra, especially because the Libra Association's partner members and the currencies that Libra was to be backed by had intentionally rejected China. As a result, China's central bank, feeling the heat of competition, felt compelled to accelerate the global race to a digital currency. (BOXMINING, 2021)

The CBDC program in China is scheduled to proceed from the planning stage to the implementation stage in 2019. The PBoC will soon begin CBDC tests in Shenzhen and Suzhou, with additional tests planned in other cities and regions. (KWAN, 13/05/2020)

Table N°02: The timeline of PBoC's DC/EP development



Source: Deutsche Bank Research. (02/2021). The Future of Payments: Series 2 Part II. When digital currencies become mainstream. p. 17.

China has already completed the backend infrastructure of the DCEP. The central bank's digital currency piloted In 4 major Chinese cities in April 2020,which have so far mainly been run publicly by state-owned banks, other Chinese cities, foreign firms and venues for the 2022 Winter Olympics hosted by China, will participate in the pilot testing of DCEP.

First pilot programs: The objective for the moment is to test the theoretical reliability, the stability of the system, the functional availability, the convenience of the processes, and the applicability of the scenarios as well as the management of the risks associated with such a currency. (Maquet, 2020)

Have been undertaken in the cities of Shenzhen, Chengdu, Suzhou, and Xiong'an since mid-2020. Between April and October, the PBoC opened over 100,000 consumer digital wallets and thousands of business digital wallets, processing RMB 2 billion (€254.8 million) in 4

million digital Yuan transactions. Integrating state-of-the-art technologies such as barcode scanning, tap-and-go payments and facial recognition, these transactions cover over 12.000 different use case from retail to transportation and government services (Jahn & Müller, 2020).

China's Blockchain-based Service Network (BSN) announced an audacious proposal for a worldwide network that will support future central bank digital currencies (CBDC) from different nations on January 16. It plans to launch a beta version of the universal digital payment network (UDPN) in the second half of 2021, with a full release five years later. It makes no mention of the Digital Yuan, despite the fact that it will very certainly be one of the first to be utilized.

A "standardized digital currency transfer mechanism and payment procedure" is mentioned in the BSN blog post. If the BSN manages to fulfil its aim of having its network adopted on a large scale, it could have a significant role in setting the standards used by others. And not just in China. China's State Information Center (SIC), China Mobile, UnionPay, Smart Government, and Red Date Technology, which is spearheading the international rollout pilot, initiated the BSN. (Caudevilla, 2021)

ATM tests in Shenzhen: the Agricultural Bank of China is trialing the deposit and withdrawal of DCEP from users' checking and savings accounts. Currently, the service is available on several Agricultural Bank automated teller machines in Shenzhen. The Bank intends to expand the DCEP experiment to include payments for public utilities and e-government services. Because this is the first DCEP study including bank ATMs, it's a crucial test. Citizens can exchange fiat currency for digital yuan under this experimental scheme.

The tests on the mainland have been a huge success. Suzhou's municipal administration stated on December 4 that it will give away 100,000 digital "red packets" to citizens through a lottery, each holding 200 yuan and totaling 20 million yuan, as part of the latest DCEP experiments.

On October 12, 2020, Shenzhen conducted a similar trial: the city held a lottery to distribute a total of ten million yuan in the country's new digital currency. Nearly two million people applied, and 50,000 of them won digital "red packets" with each one containing 200 yuan. The winners downloaded the digital yuan app and spent it at 3,389 designated shops in Shenzhen´s Luohu district. (Caudevilla, 2021) Setting up this major pilot scheme, the government was able to

demonstrate the technical viability of a central bank digital currency. (Jahn & Müller, 2020)

A bill amendment: On October 23, 2020, the People's Bank of China (PBoC) issued the updated draft Law of the People's Bank of China for public feedback ("Draft PBoC Law"). RMB is defined as both physical and digital forms in the Draft PBoC Law, which provides the legal foundation for the issue of DCEP. Moreover, this draft law reiterates that, other than DCEP, there is a wide prohibition on producing and selling digital tokens in place of RMB. The period for accepting public comments ends on November 23, 2020. The draft law is expected to become law sometime in 2021. (Peters, Green, & Yang, 2020, p. 3)

Major Chinese banks are now allowing people to apply for digital yuan wallets: Six Chinese state-owned banks are now enabling public users in Shanghai and Beijing to apply to activate digital yuan wallets, implying yet another step toward a wider deployment.

In earlier testing, users had to either win a lottery or be asked to participate in order to activate a digital yuan wallet.

The six banks include the Industrial and Commercial Bank of China, China Construction Bank, Agricultural Bank of China, Bank of China, Postal Savings Bank of China and the Bank of Communications.

More testing: with the aim of promoting financial operating efficiency and lowering financial transaction costs. Shenzhen distributed RMB 20 million worth of DCEP for public testing on January 11, 2021. Citizens with red envelopes will have until January 17th, 2021 to spend them.

In March 2021, China will roll out more pilot schemes and choose cities with vibrant new forms of consumption, with the aim of promoting financial operating efficiency and lowering financial transaction costs, state planner National Development and Reform Commission said in a document posted on its website. The constant increase in the number of partners (JD.com, Huawei , large Chinese companies such as Meituan Dianping) joining the Central Bank in this digital yuan project is proof of China's desire to place first at the finish line.

In June 2021 the testing of the system is almost complete, Transactions equivalent to some 35.4 billion yuan ($ 5.4 billion) have been completed, the central bank said in a report, adding that more than 20.8 million people could pay in digital yuan.

3.5 The technical design of the digital Renminbi (Yuan digital)

Digital Renminbi aka DC/EP (digital currency/electronic payment) is a digital form of china's fiat currency, will solely be issued by the central bank of the People's Republic of China - The People's Bank of China "PBoC"-, is backed 1:1 with the fiat Chinese renminbi and will be distributed through selected banks and non-financial players (e.g. Alibaba, Tencent, and Union Pay) who already operate widely used mobile payment networks. (Jahn & Müller, 2020). DCEP will not be listed on any cryptocurrency exchanges and will not be used for value speculation.

The Chinese "Digital Currency Electronic Payment", DCEP, is designed as a digital version of the Yuan, the official currency. The issuance and circulation system is two-tiered:

The first tier would be the issuance of DCEP from the PBoC to commercial banks and nonfinancial institutions such as Alibaba, Tencent, and UnionPay (i.e., intermediaries). The second tier would be the distribution of DCEP from the above-mentioned intermediaries to end users such as companies and individuals in the form of a digital wallet which is accessed through an application on a mobile phone authorized by the Central Bank of China. In addition, the DCEP will be based on the account rather than symbolized as a token, as had been discussed some time ago. The "digital Yuan" will be used to top up bank accounts, make bank transfers, as well as payments of all kinds. (Maquet, 2020) and has the following characteristics:

- Unlike other crypto currencies, the Digital Yuan will be issued by China's reserve bank. To ensure price stability, the Digital Yuan will be backed by the nation's credit.

- CBDC will be account based rather than tokenized. That finality will occur before bank account settlement through real-time gross settlement. If peer-to-peer transfers are too added, new technologies such as distributed ledger technology and blockchain will have to be applied. Monitoring such transactions by the PBOC will be possible, as it would operate the central ledger. (Poenisch, 2020).

- Not bound by the limitations of a particular technology In terms of CBDC technology, the PBoC does not have to employ blockchain or other decentralized ledger technology; other technologies may be used instead. Because the CBDC scheme requires a trading system capable of processing at least 300,000 transactions per second and that this is a

speed difficult to be achieved through the block chain technology currently available.

- The CBDC substitutes for M0 (cash) but not for M1 (cash + demand deposits) or M2 (M1+quasi currency, such as time deposits). This means that rather than holding wealth, the CBDC is meant to serve as a mechanism of settlement. M1 and M2 have already been digitalized in the form of account management in the current Chinese financial system; therefore there is no need to employ any additional digitalization technology. One reason cited for promoting the CBDC is that paper currency and coins are not only costly to print, mint, issue, and store compared with digital currencies, but their use also requires continuous investment in research and development of technology to prevent counterfeiting. Furthermore, because cash gives transaction anonymity, it is vulnerable to being utilized for money laundering or terrorism financing. The CBDC will assist to alleviate the difficulties associated with the use of currency. (KWAN, 13/05/2020)

- A screenshot of the first digital Yuan e-wallet is available, demonstrating the basics: the ability to store digital cash, request funds, send and receive funds, review all transactions, and link accounts (presumably banks and financial institutions) to the e-wallet. (Slawotsky, 2020, p. 50)

- Protect users' privacy while recognizing that complete anonymity was unlikely."We will keep the balance between controllable anonymity and anti-money laundering, CTF [counter terrorist financing], and also tax issues, online gambling, and any electronic criminal activities," said Mu. "That is a balance we have to keep, and that is our goal." (Castor, 2020)

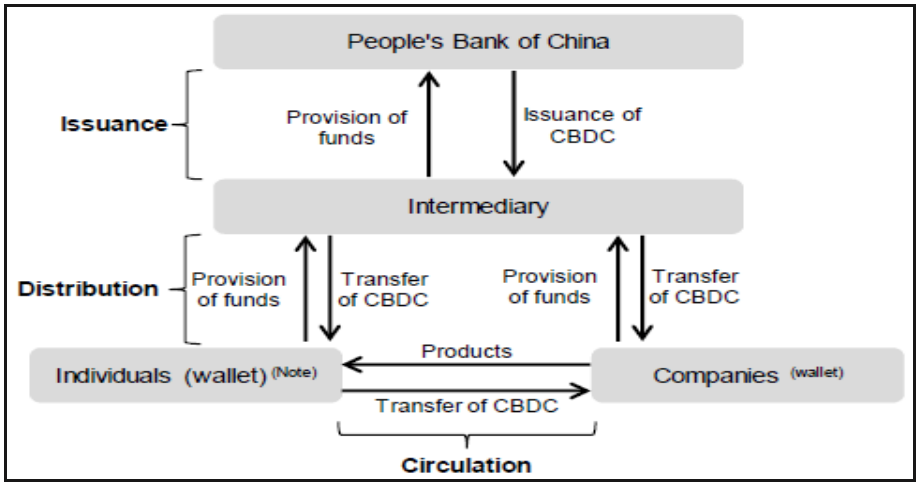
- The DC/EP system will not be linked to or reliant on the users' bank accounts. It will operate apart from the country's current banking system.

- No interest: To reduce competition between CBDC and bank deposits, the central bank will not pay interest on CBDC. This is consistent with the CBDC's intended function, which focuses mainly on settlement.

- Keep transactions in a centralized database. By adopting a centralized design, the PBOC not only runs the country's digital currency issuance and management system, but also controls the issuance quota and enforces technical and security standards. This is referred to as a "Centralized Ledger", which could be represented by a ledger led by the Central Bank. This is in contrast to the "Distributed Ledger" used by bitcoin, for example, where anyone is allowed to write and view the ledger. (Maquet, 2020)

- A hierarchical, distributed network is the approach being discussed by the People's Bank of China (PBOC). In a hierarchical (figure 02), distributed network approach, the central bank controls the source of DFC, including its security and the amount to be created and distributed, but the distribution and transaction chain closely matches that of physical cash. The DFC value is distributed along the existing channels of commercial banks and e-money operators and ends up in the hands of the public. (ITU-T, 07/2019, p. 23)

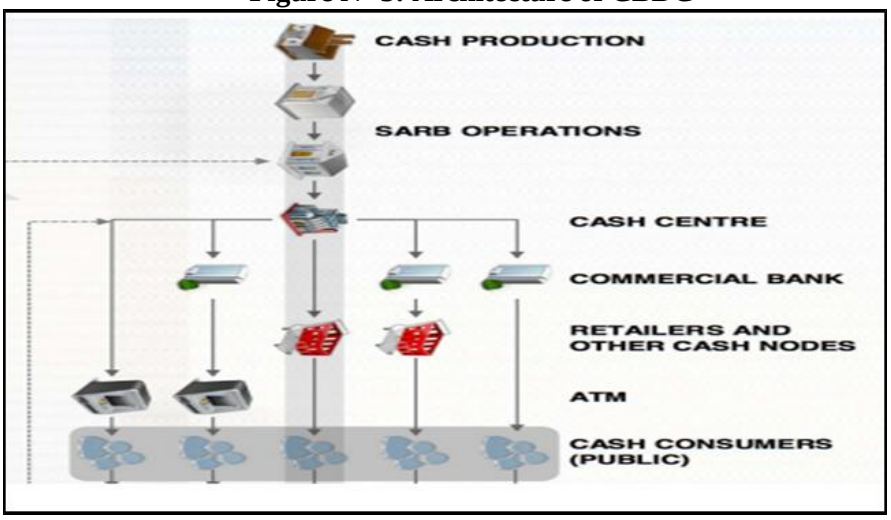
Figure N° 2: System of CBDC



Source**:** Chi Hung KWAN.(13/05/2020). China Aiming to Issue a Central Bank Digital Currency—Expected Macro-Level Effects. Retrieved from https://www.rieti.go.jp/en/china/19122701.html

- RMB uses a two-layer architecture and a two-tier delivery system, In the absence of a network, the transfer or payment function can be performed by touching two mobile phones equipped with a DC/EP digital wallet.. (Fries, 2021) The DC/EP's dual offline technology will make sure that transactions will still get processed even if China's online banking and other virtual payment platforms go offline due to poor network signal strength. This wallet should be linked to a phone number, which is used to receive a confirmation code. (Maquet, 2020)

Figure N° 3: Architecture of CBDC



Source**:** ITU-T. (07/2019). Reference Architecture and Use Cases Report. Geneva: ITU-Focus Group Digital Currency Including Digital Fiat Currency. Retrieved from https://www.itu.int/en/ITU-T/focusgroups/dfc/Documents/DFC-O-014_RA%20Delivrable_Reference%20Architecture%20and%20Use%20Cases%20Report.pdfTU-T , p. 24.

Among the reasons cited for adopting the two-tiered structure are: (i) that it is difficult for the central bank to issue the CBDC directly to the people due to China's massive economic size; and (ii) that if the central bank issues the CBDC directly to the people, it may become a potential competitor to banks. Because Type (A), a retail/account-based type, has been essentially ruled out as a possibility, Type (B), a retail/token type, is the sole remaining choice among the four kinds previously stated.

4. The reasons behind the digitization of the currency

There are at least five principal motivations behind China’s drive to tokenize the digital Renminbi:

4.1. Face the challenges raised by crypto currency: Face the challenges raised by crypto currencies: Chinese nationals have turned increasingly to cryptocurrencies (in particular, Bitcoin, Libra) for speculation but also to dodge capital controls. The nature of Bitcoin makes it ideal for moving large sums of money outside of China undetected and relatively quickly. (Loh, 2020) The most important thing is to "face the challenges raised by Libra, bitcoin and similar private digital currencies". It finds itself in a more "defensive" position, where

MNBC and associated technologies are seen as a way to fight the crisis, Libra, or pandemic. (Maquet, 2020)

4.2. The ability to better track, monitor and ultimately prevent capital flows outwards: Beijing is well aware of the dangers that come with big and rapid monetary outflows. In 2015, for instance, capital outflows amounted to an estimated US $1 trillion. More recently, there has been a noticeable increase in capital flight, with the initiation of the trade war between the United States and China. Even with extensive capital controls (including bans on cryptocurrency trading), it is difficult to prevent capital leakage if one is not determined enough. Because the digital RMB is administered centrally by the People's Bank of China (PBOC), this ensures a robust supervisory architecture. (Loh, 2020)

In theory, this would mean that the authorities would have real-time access to every single transaction and the data contained within it.

This would give the PBoC more clout in global financial markets, a concept that corresponds with other recent efforts to boost the importance of the Chinese yuan. (Jahn & Müller, 2020)

4.3. Digital Yuan and Regionalization of the digital Renminbi: One of the stated ambitions of the digital RMB is to regionalize the currency and tie it into China's expansive BRI project. While the RMB's global appeal may be limited for now, it is not improbable to countenance the eventual widespread acceptance of the Chinese digital sovereign currency in the region. South Korea, for example, has previously stated that it may accept Chinese visitors' digital RMB.

Given that Chinese payment platforms such as Alipay and WeChat are already closely integrated into payment systems across Asia (Loh, 2020), In May 2020, the Chinese political advisory body CPPCC proposed a public-private collaboration digital currency, backed by a basket of the Chinese Yuan (CNY), Japanese Yen (JPY), Korean Won (KRW) and the Hong Kong Dollar (HKD). as a cross-border payment network that avoids the use of the US dollar and includes digital wallets for firms who support a regional free trade agreement. (Jahn & Müller, 2020)

Twelve of the region's countries, including China, Japan and South Korea, have just signed the Regional Comprehensive Economic Partnership (RCEP), the biggest free trade agreement in the world (Jahn & Müller, 2020). Perhaps the concept of an East Asian common digital currency might materialize. It just seems like a matter of time until the digital RMB gets regionalized. (Loh, 2020)

4.4 The Digital Yuan could serve as a conduit for conducting business outside the purview of USD sanctions: because of its virtual nature, the e-yuan may be more easily implemented in countries sanctioned by the United States and which threaten to use the Chinese currency for their economic exchanges. This is especially true in Europe and Africa."In this way, China seeks to weaken the dollar, and establish itself as a power on all fronts. (Maquet, 2020)

A Digital Yuan is not only a national security priority for China - Existential National Security Priority for China and the United States are locked in a strategic rivalry for global dominance with massive implications for the international governance architecture in law, trade, and finance-, but it also appeals to sanctioned parties -and entities concerned about being subject to USD sanctions-.Even for US allies who are already discussing issuing the CBDC without US participation, the use of the digital Yuan may be an appealing option.(Slawotsky, 2020, pp. 46-53)

4.5 Internationalization digital Renminbi: The digital yuan will certainly bring many opportunities and benefits to China: domestically, it will facilitate consumers' retail payments, among many other advantages, while, non-domestically. A cross-border deployment of the digital yuan will assist transform certain USD-denominated exports into yuan-based exports, posing a challenge to the USD's worldwide dominance.. (Caudevilla, 2021)

China's lead over the US in issuing the CBDC and promoting its international use is likely to create a favorable environment for internationalization and boost the yuan's status as a payment currency in the global financial system.

One of the major factors driving China's desire to develop its CBDC as quickly as possible is competition with the United States, with the American dollar increasingly appearing alongside or in place of the Yuan in transactions. The People's Bank of China creates its own digital currency, which it uses to replace the dollar in trade along the Belt and Road Initiative; it has the potential to challenge the dollar's dominance. (The World Economic Forum, 03/2019, p. 12)

If DCEP proves to be viable, China will become the first major economy to introduce a Central Bank Digital Currency -CBDC- and many countries will undoubtedly follow next. (Caudevilla, 2021)

However, for the internationalization of the digital Yuan to make progress, the following conditions must also be satisfied:

• That China, as the issuer, has a well-developed financial market, allows free capital transactions, and secures equal market access for residents and non-residents;

• That confidence in the digital Yuan is established.

• China's share of the global economy (in terms of gross national product [GNP] or trade value) is large.

Regarding these conditions, China's strict capital controls pose the greatest obstacle to the internationalization of the digital Yuan. As the forthcoming CBDC is also expected to be subjected to strict capital controls, the effects of its introduction on promoting the internationalization of the Yuan are expected to be limited. (KWAN, 13/05/2020)

Conclusion :

China is expected to be the first country in the world to fully implement the central bank digital currency. China is doing thorough planning in preparation for the introduction of the central bank digital currency, and it is anticipated to remain cautious after the central bank digital currency is implemented. The BRI and Chinese tourists traveling around the region provides the perfect opportunity for China to push the digital Yuan into neighboring countries

The results: We derived the following conclusions from the information given in this study paper:

1- A digital banknote would be a central bank digital currency Individuals may use it to pay companies, stores, or each other (a "retail central bank digital currency"), or financial institutions could use it to settle financial market deals (a "wholesale central bank digital currency").

2- The significance of digital currency/electronic payment (e-RMB) is that it’s designed as a replacement for the Reserve Money system (M0); cutting back the cost and friction of bank transfers; it will also reduce the dangers of anonymous counterfeiting, money laundering, and criminal funding associated with offline paper money transactions. It is also possible to reduce transaction costs for businesses, reduce friction in peer-to-peer payments, make cross-border payments easier, and provide a more sanitary payment option.

3- digital currency/electronic payment differs from traditional e-payment methods in that transactions require the use of a third-party intermediary, whereas with digital currency/electronic payment, transactions can be

conducted without the use of the internet or a bank account by utilizing near-field communication technology.

4- Compared with traditional payment methods, it is expected that China's digital currency/electronic payment (E-RMB) will have these features. A digital currency provides unprecedented capabilities for governments to control and monitor financials in real-time in order to compile indicators of monetary policy. From a geopolitical standpoint, there is competition with the US over the internationalization of the Yuan and its use as a replacement for the dollar. To provide its own payment solution, to replace money and to pre-empt US financial sanctions.

Recommendations: Based on the results, we decided to submit these proposals:

Although many countries are conducting research on central bank digital currency, China is a step ahead of others in this international competition. China's central bank digital currency issuance scheme, underlying technology, societal acceptance and operational cost study findings, and introduction efforts are projected to be valuable as sources of reference information for other nations.

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