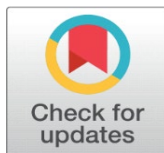


DIGITAL CURRENCY IN INDIA: A CRITICAL REVIEW

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ABSTRACT

In today's world, everything has been digitalised. The currency has also been digitalised. The RBI launched a pilot project for e rupee or digital rupee on 1 November, 2022. This is a pilot project which is conducted in 4 cities of India- Delhi, Mumbai, Bengaluru, Bhubaneshwar. Now the people have not required to take physical wallet in their pocket. In future, the physical currency will not be seen in the hands of general public. This is accepted as a legal tender. It includes the benefit of cryptocurrency and Fiat money. The physical wallet is replaced with digital wallet. Here, front end and back end transactions will be executed immediately. Many countries like China, Bahamas, Nigeria etc. have their own CBDC. This paper has been drafted to throw a light on the purpose behind the launch of digital currency by RBI, historical background and the issues and challenges of implementing e-rupee. This paper gives a glimpse of the current global scenario of central bank digital currency.

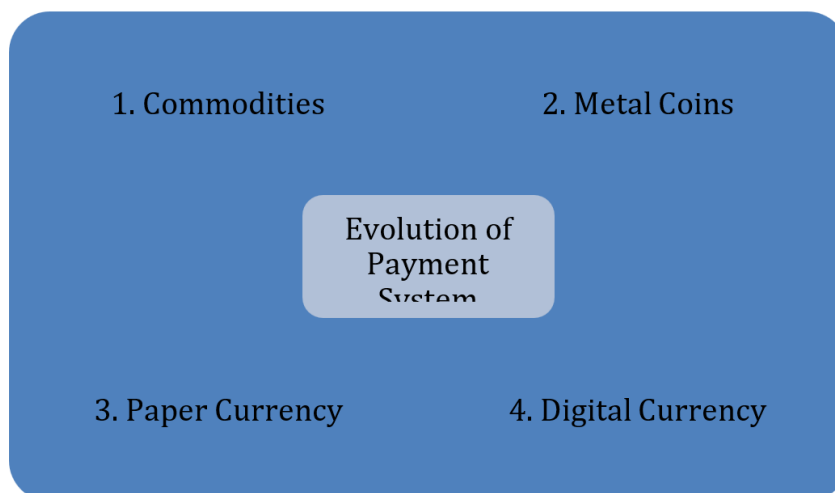
Keywords: Cryptocurrency, Fiat Money, Digital Rupee, CBDC, RBI

1. INTRODUCTION

In old times, the goods and services are purchased in exchange of other goods and services. Barter system was used. Then some common medium of exchange was required then currency was introduced in India in 1861. Now a days payment is done through electronic medium like UPI, Google pay etc. In November 2022, a bill for digital rupee was passed. A pilot project for digital rupee was launched in 4 cities of India which is blockchain technology-based currency having legally accepted. Here settlement is done on real time basis. The phase wise participation of eight banks have been found in this pilot. The four banks have been selected in first phase, i.e. State Bank of India, ICICI Bank, Yes Bank and IDFC First Bank in four cities across the country. Four more banks will join this project, i.e., Bank of Baroda, Union Bank of India, HDFC Bank and Kotak Mahindra Bank.

2. WHAT IS CURRENCY?

Currency is the medium of exchange used for purchasing goods and services generally accepted by people. It includes coins, paper notes etc. It is accepted as a legal tender. Digital rupee is a currency which is managed by central bank while UPI is a payment mechanism for transfer of money which is not a currency.



3. WHAT IS DIGITAL CURRENCY?

Digital currency is that type of currency which exists in digital form . It may be decentralised controlled or centralised controlled.

1.1. TYPES OF DIGITAL CURRENCY

- 1) Cryptocurrency.
- 2) Central bank digital currency.

4. CRYPTOCURRENCY

Cryptocurrency is a blockchain technology based digital currency through a computer network used decentralised system which have not been reliant a central authority like banks, government agency etc. It is not completely legal in India because it is not controlled by any central authority. Actually, it has a decentralised mechanism and it uses no intermediary like banks etc. when funds have been transferred. Transactions are not traced here. It uses distributed ledger i.e. blockchain technology based which increases security. Its value depends on demand and supply. It is created through the process of mining and it is privately owned that uses cryptography.

1.2. EXAMPLES OF CRYPTOCURRENCY

- Libra.
- Ethereum.
- Litecoin.
- Bitcoin.
- XRP.
- Tether.
- Tezos etc.

5. CENTRAL BANK DIGITAL CURRENCY

Central bank digital currency is a digital currency which is regulated by the central bank of a country.

CBDC: What Do They Have To Say



T Rabi Shankar, Deputy Governor, RBI

"It is conceivable for an Indian importer to pay its American exporter on a real time basis in digital Dollars, without the need of an intermediary. This transaction would be final, as if cash dollars are handed over, and would not even require that the US Federal Reserve system is open for settlement."



Jerome Powell, chair, US Federal Reserve

"You wouldn't need stablecoins; you wouldn't need cryptocurrencies, if you had a digital U.S. currency. I think that's one of the stronger arguments in its favor."



Tommaso Mancini-Griffoli, Division Chief, IMF

"Can you imagine a central bank becoming more like a software company, constantly needing to remain on the cutting edge of technology and serve diverse and rapidly evolving user needs?"



Kimwood Mott, Central Bank of Bahamas

"It's fast, seamless and - in the age of COVID - it's safe."



Yao Qian, Former Head of the Digital Currency Initiative - People's Bank of China (PBoC)

"CBDCs shouldn't attempt to be just a digital form of physical cash, but should incorporate smart contract functionality."

Source Anupam, S. (2022). Decoding India's CBDC Project – The Ambitious Plan To Launch India's Digital Currency. <https://inc42.com/features/decoding-indias-cbdc-project-the-ambitious-plan-to-launch-indias-digital-currency/>

CBDC is a digital currency which includes the characteristics of cryptocurrency and Fiat money. Like cryptocurrency it is based on blockchain technology that uses distributed ledger for verifying transaction which enhances security. Like Fiat money it is accepted as a legal tender and no one can deny to accept it.

Difference between Central Bank Digital Currency (CBDC) and Cryptocurrency

Basis for Difference	CBDC	Cryptocurrency
Meaning	Central bank digital currency is regulated by the central bank of a nation.	Cryptocurrency is based on cryptography privately owned no centralised control.
Status	It is accepted as a legal tender, therefore, no one can deny to accept it.	Cryptocurrency is not accepted as legal tender because it has no centralised control.
Control	CBDC is regulated by central bank of the nation having centralised control.	Cryptocurrency has no centralised control because it is based on decentralised network.
Intermediary	Transactions can be easily traced here because participation is made through banks	In cryptocurrency transactions cannot traced easily because it has no regulatory authority
Example	Digital rupee/ e-rupee	Bitcoin, Litecoin, ethereum etc.
Encryption	Strong password are required for digital wallet.	It is based on encryption end to end.

6. CENTRAL BANK DIGITAL CURRENCY IN THE WORLD

The countries have to be divided into four categories based on the development of CBDC as under:-

- 1) Already launched CBDC.
- 2) Pilot Phase.
- 3) Development Phase.
- 4) Research Phase.

Russia and Australia fall into development stage. The US and 39 other countries still fall into research phase. The Bahamas is the first country that launched its own CBDC called Sand Dollar in October 2020. After that Nigeria launched e- Naira. China, India, South Africa, South Korea etc. launched their pilot project.

91 Countries Working On CBDC



Source Anupam, S. (2022). Decoding India's CBDC Project – The Ambitious Plan To Launch India's Digital Currency. <https://inc42.com/features/decoding-indias-cbdc-project-the-ambitious-plan-to-launch-indias-digital-currency/>

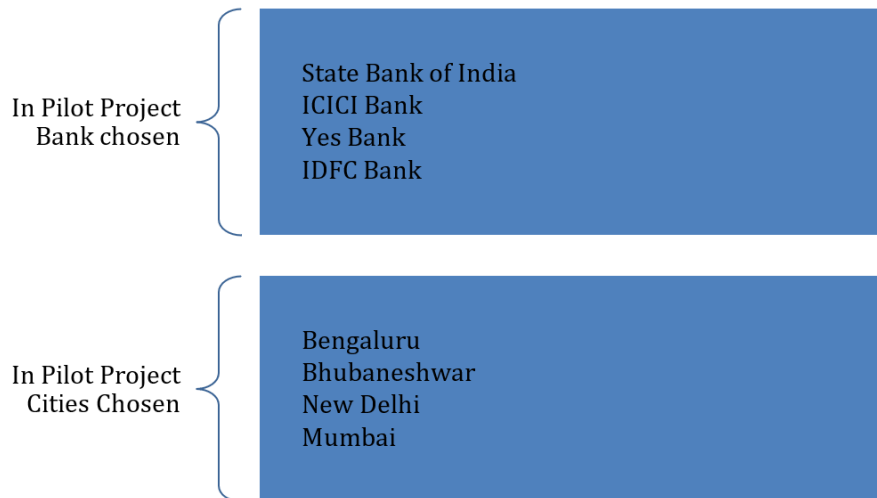
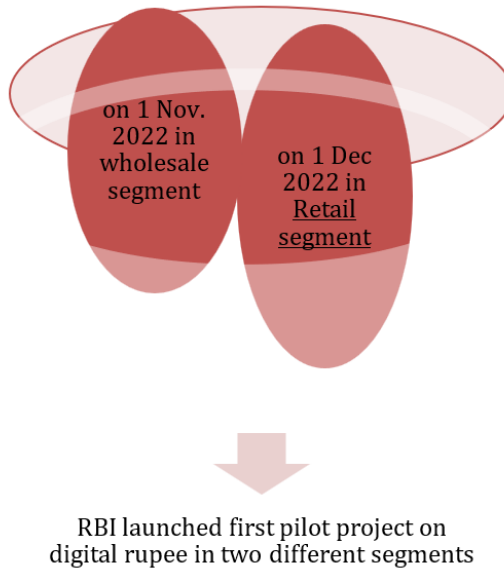
7. DIGITAL RUPEE

Digital rupee is a blockchain technology -based currency which is accepted as a legal tender and controlled by RBI. It is a digital currency. Physical notes and wallet are replaced by digital currency and digital wallet. All settlements will be done on real time basis. The payment is done through banks.

1.3. HISTORICAL BACKGROUND OF DIGITAL RUPEE

The digital rupee is a digital currency introduced by the Reserve Bank of India (RBI) on 1st December 2022. However, digital rupee was proposed in January 2017. It is a blockchain distributive ledger technology- based currency. As per National Payment Corporation of India (NPCI) the growth of UPI transactions has reached more than 8 times. In this regard, a pilot project was executed in 4 cities – Delhi, Mumbai, Bengaluru and Bhubaneshwar. If it remains successful then it will be implemented in whole India. This currency has two types:

- 1) **Wholesale Account based Digital Rupee:** The wholesale digital rupee mainly used for interbank settlement. The bank has to maintain CRR and SLR. The digital rupee can be used for the said purposes.
- 2) **Retail token based Digital Rupee:** The Retail digital rupee is used for general purposes by the general public as a currency.



The Digital rupee works in centralised control system. It is regulated by RBI. Transactions can be easily traced. Payments are to be made through bank. It will decrease printing expenditure for government to printing notes. It is based on blockchain technology based which increases security.

8. REVIEW OF LITERATURE

The review of literature plays an important role in any research. Various studies have been conducted time to time. An effort has been made to review various research papers to find some research gap.

(Wadhawan et al., 2023) finds the holistic view of digital rupee. It studies the factors that act as catalyst to introduce the digital rupee. The study also highlights the challenges and future prospectus of digital rupee.

(Haque & Shoaib, 2023) explores the challenges and future prospects of digital rupee. She compared the e-rupee with other country CBDC.

(Garg & Kumar, 2023) point out the key motivation behind the issuance of digital rupee.

(Begum, 2023) concludes the present prospects and how the CBDC differ from other preferred mode of payment.

(Ma, 2023) considers the impact of introduction of CBDC on international financial system. It also highlights the risk exposure of CBDC in India.

(Pavoor & Ajithkumar, 2022) examines the effect of CBDC on privately owned cryptocurrency. It also explores the other countries using CBDC.

(Pandey, 2022) analyses the need of digital currency and its impact on payment process. He also finds how printing cost can be reduced by introduction of digital rupee.

(Priyadarshini & Kar, 2021) examines the issues in three ways –the monetary sovereignty issues, from the point of view of national sovereignty and developmental issues and challenges from the point of view of developing countries. The study also finds out the CBDC in India's perspective.

(Kaur, 2019) makes a review of the digital currency and its implication in India. She points out some facts about the technology behind digital currency and global trend of digital currency. She has also emphasized on the SWOT analysis for digital rupee.

1.4. OBJECTIVES OF THE STUDY

- 1) To study the historical background of the digital rupee.
- 2) To find out the purpose of government behind the introduction of digital rupee.
- 3) To review the current scenario of central bank digital currency in the world.
- 4) To study about challenges and issues in the introduction of digital rupee.

9. RESEARCH METHODOLOGY

The secondary data is used in this research. The data from published sources and research papers has been collected. The research design is descriptive in nature.

Factors that Push E-Rupee in India:

There are key motivators that push e-rupee in India are as:

- Digitalization.
- Technology upgradation.
- Demonetization.
- COVID 19.

Key features of E-Rupee:

- 1) The currency will be available in 11 denomination including 2 coins of 50 paisa and 1 rupee and rest nine will be available in notes i.e. 2,5,10,20,50,100,200,500,2000.
- 2) NPCI will keep track of all payments.
- 3) It will work on QR code.
- 4) It will not earn any interest from bank.
- 5) It will provide direct benefit transfer facility.

How to Get E – Rupee services ?

To get e- rupee services following steps are to be followed:-

- 1) Download e-rupee app.
- 2) Read all terms and condition and accept it.
- 3) KYC verification is to be done.
- 4) After that we have to set application PIN.
- 5) Now fill details and confirm it.
- 6) Once installed successfully, digital wallet is ready to scan QR code & do transaction.

Motives to launch Digital Rupee

There are some key motives of government to launch digital rupee as:

To increase safest access to public: The digital rupee is based on distributive ledger technology i.e blockchain technology based where account is updated at every stage. That is why; there is no chance of fraud.

To reduce black money: The digital rupee is based on centralised control system. Therefore, transactions can be easily traced by bank which reduced generation of black money.

To reduce printing expenditure: For printing a note expenditure comes approximately 2 rupee. The central bank has to print a lot of notes. So the printing expenditure can be reduced by use of digital rupee.

To encourage financial inclusion: Due to easily accessibility and safest mode CBDC gives opportunity to improve financial inclusion

To improve cross border payment system: The cross border payment is more complex today due to time zones, more regulation and expensive. So CBDC gives opportunity to reduce this complexity. The RBI will collaborate with other central bank in this area to remove barriers.

Instant settlements The digital rupee enables instant transfer of funds and the settlement is based on real time.

Challenges and Issues:

Digital illiteracy: In rural area most of the people have no knowledge about CBDC and more financial illiteracy there.

Privacy concerns: The transactions can be easily traced by RBI which violates the privacy of public.

Reputation risk: The public has trust on RBI. If there a cybercrime occurs in CBDC then unfortunately the public loses the trust on RBI that increases reputational risk .

Operational cost: The staff will be trained for managing CBDC which will increase operational cost.

Resist to adopt by public: The general public does not want to adopt CBDC due to privacy concern.

Obsolete technology: For management of CBDC, an upgradation of technology will be required which will increase operational cost.

10. CONCLUSION

Today it is said that the physical currency will not be replaced by digital currency in future but it can be used as a supplement of physical currency. Digital rupee is a currency introduced by central government based on blockchain technology having centralised control and real time settlement. Digital rupee is based on three models: direct model, indirect model and hybrid model. There are various challenges and risks in the implementation of digital rupee. However we can overcome these challenges and reduce risks

CONFLICT OF INTERESTS

None.

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