

Digital Rupee (e-Rupee): The idea for cutting the cost of transporting and managing cash money

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Abstract:

Currently, RBI has launched a pilot for digital Rupee in 4 cities and partnered with 4 banks for the first round. Eventually, the central bank is expected to rollout the service for everyone across the country. The central bank of India started the pilot of digital Rupee in four cities including -- Mumbai, New Delhi, Bengaluru, and Bhubaneswar. For the initial testing, RBI partnered with four banks -- State Bank of India, ICICI Bank, Yes Bank, and IDFC First Bank.

The RBI said that once the testing begins, RBI will partner with four more banks including Bank of Baroda, Union Bank of India, HDFC Bank and Kotak Mahindra Bank. The service will be expanded to many more cities in the second phase. These cities include -- Ahmedabad, Gangtok, Guwahati, Hyderabad, Indore, Kochi, Lucknow, Patna, and Shimla.

The objective of this paper is to give a brief introduction of digital Rupee and how it is different from various kind of cryptocurrencies, how to buy and use Digital Rupee and roles of NPCI in various type digital and physical transactions.

Key Words: Digital Ruppe, Cryptocurrency, UPI, Blockchain, e-Rupee, NPCI.

1. Introduction

Firstly, a quick outline of what is digital Rupee all about? In simple words, digital Rupee or digital currency is a digital form of paper money. The value of the digital Rupee and cash money is the same. For instance: 1 digital Rupee is equal to Rs 1 cash. This simply means, unlike cryptocurrency, the value of digital Rupee never fluctuates.

Unlike cryptocurrencies, which are based on blockchain, digital Rupee is Central Bank Digital Currency (CBDC) - backed by the country's central bank. The core idea behind the digital rupee launch is to do away with cash money from the market. Another key difference between the two is while the value of crypto is dependent on market conditions, making it fluctuate, that is not the case with digital Rupee. Its value remains the same throughout, just like cash money.

According to the concept note, the Central Bank Digital Currency (CBDC) is the Reserve Bank of India's official form of currency. The regulator stated that the RBI's CBDC, also known as the Digital Rupee or e-Rupee, is interchangeable one-to-one at par with the fiat currency and is the same as a sovereign currency. Now, coming to how is digital Rupee different from UPI?

2. Digital Rupee vs UPI

It is simple. Unlike digital Rupee, UPI is just an interface used for making transactions based on physical currency. Digital Rupee, on the other hand, is just another form of currency similar to fiat currency and that one can't take out of their bank account. UPI, though, is an interface that allows users to make online transactions through their bank account. It basically uses fiat currency for making transactions.

So, digital Rupee and UPI are completely different concepts. Now, with the launch of digital Rupee, India possibly aims to get away with UPI in the long run. By relying on digital Rupee, the idea is probably cutting the cost of transporting and managing cash money. So, the idea behind digital currency is

to replace the existence of cash money at some point in time. But, it's a long way to go.

3. How to buy and use Digital Rupee

Users will be able to purchase digital currencies from RBI-approved banks. They will need to head to the official app or website of any of the four designated banks. An individual can also buy e-Rupee from issuing banks even if they do not have a bank account with the lender. While it would be digital in nature, the e-Rupee-R(etail) would offer features of physical cash.

It will be like cash withdrawals from your bank account, wherein instead of receiving cash, banks would credit your e-Rupee to your wallet. You may then use it to transact like traditional cash. The banks have been instructed by the RBI to not record transactions lower than Rs 50,000.

Digital Rupee should not be confused with making an investment, meaning using it won't earn any interest.

3.1 Is Digital Rupee transferable?

Since, digital rupee is nothing else but your money in the digital form, it can easily be transferred to friends and family members. However, the transfer of the CBDC-R can only be processed by SBI, ICICI Bank, Yes Bank, and IDFC First Bank for now. It can be stored just like the normal money in Paytm or any other payment wallet.

3.2 What are the types of CBDCs?

CBDC has been classified in two categories: general-purpose or retail (CBDC-R) and wholesale (CBDC-W). CBDC-R can be used by the private sector, non-financial customers, and enterprises while the usage of wholesale CBDC (e-W) is only for certain financial institutions.

4. Cryptocurrency

In simple terms, cryptocurrency is decentralized money, free from any government or central bank's chains. It relies on blockchain technology and

uses cryptography to secure transactions done by people making it impossible to counterfeit.

However in August 2010, a hacker found a loophole in the Bitcoin protocol. The hacker exploited the vulnerability and created an infinite amount of Bitcoins by making multiple transactions before logging them into the blockchain.

The user created 184 billion Bitcoins in a few hours, but his plot was discovered, and the transactions were invalidated. To date, this has been the only threat to the Bitcoin network.

The purpose behind the creation of Bitcoin was to help people send money over the internet. It is a digital currency, an alternate payment system free from any control that works exactly like traditional currencies.

To better understand cryptocurrency, you must know about the three terminologies: blockchain, decentralization and cryptography.

4.1 Blockchain

Blockchain in cryptocurrency is the showrunner. It is a digital ledger whose access is distributed between authorized users and records transactions.

The information and access are shared among the registered users. So, anything the blockchain records is transparent and immutable—the information cannot be tampered with or hacked. Not even by the administrator.

4.2 Decentralization

Decentralization in cryptocurrency means that the asset is free from governing bodies like central banks. This mechanism makes cryptocurrencies independent. At the same time, the centralized money we use is monitored and managed by the RBI.

4.3 Cryptography

Cryptography in cryptocurrency means secret writing, which means the recipient can only read messages. It takes care of the transactions, protects operational autonomy, and fortifies the entire chain.

4.3.1 How Does Cryptocurrency Work?

All cryptocurrencies are generated through a rigorous process called mining. The miners use computers with high-end GPUs to solve various complex mathematical problems and puzzles to get cryptocurrencies as a reward. It takes days and even months to mine crypto.

People can also buy cryptocurrencies from currency owners and exchange platforms, and they can even sell them to other individuals, too. The cryptocurrencies are stored in digital wallets, which are either hot or cold. A hot wallet is connected to the internet. In contrast, cold storage keeps your holdings offline.

Cryptocurrencies can be transacted or transferred using your smartphone – just like a UPI transaction. Users can also convert their crypto holdings to cash using their bank accounts or P2P transactions.

Of course, while Bitcoin remains the popular choice for miners and investors, it did start a digital currency revolution that led to the birth of many popular currencies like Ethereum, Tether, XRP etc.

Cryptocurrencies are immune to any central authority or government interference. However, their relationship with the Indian government has been quite uncomfortable.

April 2018 – People were warned that virtual currencies are not legal tender in India. The finance ministry appointed a committee to frame a bill for cryptocurrencies in India. But the ministry overruled the ban.

In 2019 – A bill forbade mining, holding, selling, issuing, transferring and using cryptocurrencies. If found violating the law, people would pay a hefty fine or face imprisonment of up to 10 years.

March 2020 – The ban was removed by the Supreme Court of India,

November 2021 – Finance Minister Nirmala Sitharaman raised the topic of cryptocurrency in the Rajya Sabha. She said the government hadn't taken

concrete steps to ban cryptocurrency advertisements in India, but it'll spread awareness through the RBI and SEBI.

Union Budget 2022-23 – The government of India recognized cryptocurrencies and decided to tax 30% of any virtual asset. The FM also announced the launch of a CBDC called the digital rupee.

But is digital rupee cryptocurrency? Here's some context.

5. Cryptocurrency Vs Digital Rupee

According to the RBI, "a CBDC is a legal tender issued by a central bank in a digital form. It is the same as a fiat currency and is exchangeable one-to-one with the fiat currency. Only its form is different."

But a CBDC can't be exactly compared to cryptocurrencies.

"Unlike cryptocurrencies, a CBDC isn't a commodity or claims on commodities or digital assets. Cryptocurrencies have no issuer. They are not money (certainly not currency) as the word has come to be understood historically," as said in the announcement made by RBI.

The CBDC is the digital avatar of paper currency issued by central banks like RBI and should be exchangeable with cash. The commonly-known digital rupee is a currency that the RBI issues and the digital rupee will have the same function, but it won't be a decentralized asset like cryptocurrencies. Digital rupee will be a currency issued by central banks responsible for governing and managing the asset.

The digital rupee will be a legal tender, which means you can use it to buy what you want. For example, digital wallets, NEFT and IMPS are examples of digital rupees. So, when the RBI starts circulating the digital rupee, all citizens of India can use it.

Countries that are Considering CBDC With the recent popularity of a cashless or digital financial framework, world governments and central banks are exploring (some of them have also implemented) the possibilities of digital currency.

The Bahamas, Nigeria, Dominica, Montserrat, Antigua and Barbuda, Saint Lucia, St. Kitts and Nevis, St. Vincent and the Grenadines have already launched their digital currency.

Russia – the Digital Ruble has completed the initial trials–full cycle of transactions as announced by the central bank of Russia.

China – plans to launch the eCNY or digital Yuan by 2022.

Do We Need the Digital Rupee?

The most important reason for launching a digital rupee by the RBI is to push India forward in the virtual currency race. And, of course, due to the growing importance of cryptocurrency.

- With blockchain technology, the digital rupee will increase efficiency and transparency.
- Blockchain will also enable real-time tracking and ledger maintenance.
- The payment system will be available to wholesale and retail customers 24/7.
- Indian buyers can pay without a middle man.
- Lower transaction cost.
- Real-time account settlements.
- You don't have to open a bank account to transact with a digital rupee.
- Fast cross-border transactions.
- No risk of volatility, as the RBI, will back it.
- Compared to currency notes, the digital rupee will be mobile forever.

But with a behemoth payment system like UPI around, can CBDCs up the game?

According to a survey by the RBI, cash remains the preferred mode of payment for receiving money for regular expenses. Cash is used predominantly for small value transactions (amounts up to INR 500).

All cryptocurrencies like Bitcoin, Ethereum, Litecoin etc., won't be exempt from taxation.

Only RBI's digital rupee will be free from tax regulations.

6. NPCI

National Payments Corporation of India (NPCI), an umbrella organisation for operating retail payments and settlement systems in India, is an initiative of Reserve Bank of India (RBI) and Indian Banks' Association (IBA) under the provisions of the Payment and Settlement Systems Act, 2007, for creating a robust Payment & Settlement Infrastructure in India.

Considering the utility nature of the objects of NPCI, it has been incorporated as a "Not for Profit" Company under the provisions of Section 25 of Companies Act 1956 (now Section 8 of Companies Act 2013), with an intention to provide infrastructure to the entire Banking system in India for physical as well as electronic payment and settlement systems. The Company is focused on bringing innovations in the retail payment systems through the use of technology for achieving greater efficiency in operations and widening the reach of payment systems.

The ten core promoter banks are State Bank of India, Punjab National Bank, Canara Bank, Bank of Baroda, Union Bank of India, Bank of India, ICICI Bank Limited, HDFC Bank Limited, Citibank N. A. and HSBC. In 2016 the shareholding was broad-based to 56 member banks to include more banks representing all sectors. In 2020, new entities regulated by RBI were inducted, consisting of Payment Service Operators, payment banks, Small Finance Banks, etc. The shares were allotted pursuant to issuance of equity shares on private placement basis in compliance to the applicable provisions of the Companies Act, 2013.

Roles & Responsibilities of NPCI

- NPCI owns and operates the Unified Payments Interface (UPI) platform
- NPCI prescribes rules, regulations, guidelines, and the respective roles, responsibilities and liabilities of the participants, with respect to UPI. This also includes transaction processing and settlement, dispute management and clearing cut-offs for settlement
- NPCI approves the participation of Issuer Banks, PSP Banks, Third Party Application Providers (TPAP) and Prepaid Payment Instrument issuers (PPIs) in UPI
- NPCI provides a safe, secure and efficient UPI system and network
- NPCI provides online transaction routing, processing and settlement services to members participating in UPI
- NPCI can, either directly or through a third party, conduct audit on UPI participants and call for data, information and records, in relation to their participation in UPI
- NPCI provides the banks participating in UPI access to system where they can download reports, raise chargebacks, update the status of UPI transactions etc.

Roles & responsibilities of PSP Bank

- PSP Bank is a member of UPI and connects to the UPI platform for availing UPI payment facility and providing the same to the TPAP which in turn enables the end-user customers / merchants to make and accept UPI payments
- PSP Bank, either through its own app or TPAP's app, on-boards and registers the end-user customers on UPI and links their bank accounts to their respective UPI ID.

- PSP Bank is responsible for authentication of the end-user customer at the time of registration of such customer, either through its own app or TPAP's app
- PSP Bank engages and on-boards the TPAPs to make the TPAP's UPI app available to the end-user customers
- PSP Bank has to ensure that TPAP and its systems are adequately secure to function on UPI platform
- PSP Bank is responsible to ensure that UPI app and systems of TPAP are audited to safeguard security and integrity of the data and information of the end-user customer including UPI transaction data as well as UPI app security
- PSP Bank has to store all the payments data including UPI Transaction Data collected for the purpose of facilitating UPI transactions, only in India
- PSP Bank is responsible to give all UPI customers an option to choose any bank account from the list of Banks available on UPI platform for linking with the customer's UPI ID.
- PSP Bank is responsible to put in place a grievance redressal mechanism for resolving complaints and disputes raised by the end-user customer

Roles & responsibilities of TPAP

- TPAP is a service provider and participates in UPI through PSP Bank
- TPAP is responsible to comply with all the requirements prescribed by PSP Bank and NPCI in relation to TPAP's participation in UPI
- TPAP is responsible to ensure that its systems are adequately secure to function on the UPI platform
- TPAP is responsible to comply with all applicable laws, rules, regulations and guidelines etc. prescribed by any statutory or regulatory authority in

relation to UPI and TPAP's participation on the UPI platform including all circulars and guidelines issued by NPCI in this regard

- TPAP has to store all the payments data including UPI Transaction Data collected by TPAP for the purpose of facilitating UPI transactions, only in India
- TPAP is responsible to facilitate RBI, NPCI and other agencies nominated by RBI/ NPCI, to access the data, information, systems of TPAP related to UPI and carry out audits of TPAP, as and when required by RBI and NPCI
- TPAP shall facilitate the end-user customer with an option to raise grievance through the TPAP's grievance redressal facility made available through TPAP's UPI app or website and such other channels as may be deemed appropriate by the TPAP like email, messaging platform, IVR etc.

Conclusion:

The concept of a Digital Rupee, or e-Rupee, presents a compelling solution to the challenges associated with transporting and managing physical cash. By transitioning to a digital currency system, several benefits emerge, primarily centered around cost reduction, efficiency, and financial inclusion. The foremost advantage of implementing a digital currency like the e-Rupee lies in its ability to significantly cut the costs associated with printing, transporting, and safeguarding physical cash. This reduction in overhead expenses translates into substantial savings for governments, financial institutions, and businesses involved in cash handling operations. Moreover, digital currencies streamline transactions, offering increased efficiency and real-time processing capabilities. Furthermore, the adoption of a digital currency promotes financial inclusion by extending access to banking and payment services to underserved populations. However, the successful implementation of a Digital Rupee requires addressing various challenges, including regulatory frameworks, cybersecurity concerns, and the need for robust infrastructure.

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