

## **THE RISE OF DIGITAL CURRENCIES AND CENTRAL BANK DIGITAL CURRENCIES (CBDCS)**



*Have you imagined a world where money exists solely in digital form and is transferred in just a CLICK?*

## Introduction

Welcome to the fascinating world of digital currencies where traditional cash takes a new form. This is the decade for the financial sector's monumental shift with the rise of digital currencies and the Central Bank Digital Currencies (CBDCs). These are important factors in the transformative journey of the financial sector.

The research by PWC indicates an exponential growth of over 149.5 trillion in digital transactions in 2022 which took place with the massive volume of 74.05 billion transactions through UPI. <sup>1</sup>Reserve Bank of India (RBI) has introduced the CBDC such as e-rupee which is a potential game-changer in digital currency adoption.

### WHAT ABOUT THE CHALLENGES?

So, you have heard about the rise of digital currency and the take of RBI in India to enter into the world of digital currency. However, some challenges are being highlighted such as *double spending scams, cyber-attacks, and the possibility of misinterpretation of ledgers*.

Building a digital currency is not just about creating an application but about developing mechanisms that safeguard the interest of the public. So, while the e-Rupee promises a world of convenience and possibilities, we are on the edge, watching how these challenges are being tackled in the process.

## Problem Statement

Digital currencies like India's e-rupee offer convenience but face challenges like double spending scams and cyber threats. This whitepaper aims to examine in detail these obstacles exploring the impact on financial security and the adoption of digital money.

*“Amidst the challenges of Digital Currency, there lies a ground for innovation and progress”*

## Digital Currencies and CBDCs

The talk about digital currencies is everywhere, but you are puzzled by the thought of their use.

---

<sup>1</sup><https://www.pwc.in/research-and-insights-hub/future-of-digital-currency-in-india.html>

Do you know how you can use applications on your phone to pay for groceries or other items instead of cash? That's kind of like a digital currency, but not the paper or metal kind. The currency is virtually being transferred to make transactions smoother, faster, and in a more secure manner.

CBDCs are regulated by central banks which aim to design and enhance transactions making them faster, safer, and available to more people. This eliminates the need for using traditional banks.

CBDCs like e-rupee offer a promising solution to the challenge of maintaining physical money and critical transactions. The advancement of technology and the adoption of new payment avenues are creating possibilities for offering cutting-edge functionalities. The RBI envisions the e-Rupee as a futuristic payment mode which will offer seamless and smooth transactions.

For instance, for every physical INR 100 note, there are various kinds of costs involved such as printing, distributing, and managing throughout its lifecycle. Not to mention the strain on the environment due to the increased use of cash circulation, storage, and carbon footprint.

More cash in circulation means there are more regulations, policies, and distribution of work for the regulators. It also means that you have to go through more security concerns and the risk of mishandling money during cash circulation.

As you can see, the future of payments is evolving and CBDCs are in the moment of its evolution. Hence, it is promising you a more efficient and sustainable way to handle money in our ever-evolving world.

#### ACCOUNT-BASED CBDC

- Requires maintenance of record of balances and transactions.

#### TOKEN BASED CBDC

- Works as a bearer-instrument like banknotes

The two approaches account-based and token-based systems represent distinct approaches in the design and implementation of CBDCs.

In an **Account-based** CBDC, you are required to maintain records of balances and transactions for each user. This model is often favoured for larger-scale transactions and wholesale CBDC applications. The features include:

- ✓ Regular bank account functioning

- ✓ Favoured for large-scale
- ✓ High-value settlements
- ✓ Maintain records of balances
- ✓ Involvement of Banks/Authorized Personnel

**Token-based** CBDCs operate more like physical cash in a digital form. The features include:

- ✓ Represents unit of currency
- ✓ Functions as bearer instrument
- ✓ Currency units are not tied to specific accounts.
- ✓ Direct ownership transfer between users
- ✓ Favoured in retail and smaller-scale payments

To assess both, it can be provided that account-based emphasizes the user accounts and transaction records. Meanwhile, token-based CBDCs focus on direct ownership and transfer of digital tokens.

## Exploring Challenges

Digital currencies including the CBDCs like India's e-rupee face several hurdles that impact their adoption through the

seamless integration into financial systems.

Digital currencies also raise security concerns which increases the risk of cyber threats. There is a need for the safety and protection of financial transactions and user data.

***“NOBODY’S SURE ABOUT THE RULES FOR USING DIGITAL MONEY. THIS MAKES IT CONFUSING FOR EVERYONE – USERS, BUSINESSES, AND EVEN GOVERNMENTS”***

According to a survey by Cybersecurity Ventures, cybercrime costs are expected to reach \$10.5 trillion annually by 2025<sup>2</sup>. Digital currencies face persistent security challenges due to cyber threats and hacking attempts. Reports indicate that billions of dollars' worth of cryptocurrencies have been stolen or lost due to cyberattacks on exchanges and wallets.

A global survey by the Bank for International Settlements (BIS) revealed that over 80% of central banks are actively researching or considering the implementation of Central Bank Digital Currencies<sup>3</sup> (CBDCs). However, regulatory frameworks for digital currencies remain

---

<sup>2</sup><https://cybersecurityventures.com/hackerpocalypse-cybercrime-report-2016/>

<sup>3</sup> <https://www.bis.org/publ/bppdf/bispap114.pdf>

fragmented worldwide, causing uncertainty and hindering widespread acceptance.

Imagine digital currencies like online bank accounts. If your online bank accounts can be hacked, there are similar risks to digital currencies as well. Unlike traditional currencies regulated by governments which may operate without specific regulations. This absence of oversight means there is a lack of legal protection for investors and common citizens if something goes wrong.

Some of the major challenges linked to adopting CBDCs are:

- Low ability to handle high transaction volumes.
- CBDC introduction may affect financial stability and impact banks.
- Seamless transactions require interoperability between CBDC systems.
- Ensuring access to technology in remote areas is challenging.
- Effective education and trust-building efforts are needed.

## Solutions

The adoption of digital currencies is evolving rapidly and one of the major concerns is mitigating the risks associated with money laundering and terrorist financing. Anti-money laundering (AML) guidelines are designed to prevent the illegal process of making large amounts of money obtained through criminal activities such as corruption<sup>4</sup>. Similar to AML, Counter-Terrorist Financing (CTF) measures focus on detecting and disrupting the flow of funds that can be used for illegal activities by implementing monitoring, reporting, and due diligence procedures. Several steps can help in mitigating these risks:

### ➤ Review and Update Policies

Financial institutions should revisit their internal AML and CTF guidelines in digital currencies. They also need to assess whether it is feasible to allow digital currency exchanges as banking customers and decide on their stance regarding customer transactions.

### ➤ Onboarding Requirements

---

<sup>4</sup><https://www2.deloitte.com/ca/en/pages/risk/articles/virtual-currencies-reduce-fraud.html>

There is a need for onboarding among digital currency players which helps in showing a higher level of due diligence.

### ➤ **Enhancement of Customer Monitoring**

Banks need to monitor transaction types which pose digital currency-related risk exposure and analyse data for AML red flags<sup>5</sup>.

Techniques like advanced data analysis can help identify the following:

- High-velocity transactions
- Unusual Transactions amounts
- Unbalanced in-and-out activity
- Accounts involving cryptocurrencies
- High-frequency transactions across different exchanges

These steps are the solution which shows more efficient monitoring of the digital currency-related activities which helps in mitigating AML risks and positioning themselves for better regulatory compliance. Financial institutions that take these steps early may find themselves better prepared to navigate the uncertain

regulatory landscape surrounding digital currencies.

## **Conclusion**

The digital currency shows the emergence of CBDCs like India's e-Rupee which marks a significant shift in the financial sector. Despite the immense potential for convenience and efficiency, challenges like double spending scams, cyber threats, and regulatory uncertainties loom over the transformative journey.

The absence of required frameworks globally further complicated the matter showing uncertainty and wide acceptance. The challenges are evident in that there are high transaction volumes which require assessment, achievement of interoperability, and bridging the technological gaps in remote areas to develop trust and education.

---

<sup>5</sup> <https://www.mckinsey.com/capabilities/risk-and-resilience/our-insights/managing-financial-crime-risk-in-digital-payments>