# Central bank digital currency (CBDC)

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**Why is in news?** UPI QR Code-Central Bank Digital Currency interoperability: How does it work and how do customers benefit?

With banks **enabling the interoperability of Unified Payments Interface's (UPI) Quick Response (QR) code with their central bank digital currency (CBDC) or e ? application**, users of retail digital rupee will be able to make transactions by scanning any UPI QR at a merchant outlet.

Merchants can also accept digital rupee payments through their existing UPI QR codes.

## What is interoperability?

Interoperability is the **technical compatibility** that **enables a payment system to be used in conjunction with other payment systems**, according to the RBI.

Interoperability allows **system providers and participants in different systems** to undertake, clear and settle payment transactions across systems without participating in multiple systems.

Interoperability between payment systems contributes to achieving adoption, co-existence, innovation, and efficiency for end users.

## And what is UPI QR code-CBDC interoperability?

Interoperability of UPI with the digital rupee means **all UPI QR codes are compatible with CBDC apps**.

Initially, when the **pilot for the retail digital rupee was launched**, the e?-R users had to scan a specific QR code to undertake transactions.

However, with the interoperability of the two, payments can be made using a single QR code.

The digital rupee issued by the RBI, or the CBDC, is a tokenised digital version of the rupee. The e? is held in a digital wallet, which is linked to a customer's existing savings bank account. UPI is directly linked to a customer's account.

## UPI:

UPI is a technology that consolidates various bank accounts into a single mobile app (of any participating bank) - Providing an instant real-time payment system, Allowing users to transfer money across multiple bank accounts without revealing details of one's bank account to the other party.

## QR Code:

QR code (Quick Response code) is a two-dimensional (matrix) machine-readable bar code made up of black and white square.

This code can be read by the camera of a smartphone.

It is used for storing URLs or other information that link directly to text, emails, websites, phone numbers.

## Benefit interoperability of UPI and CBDC:

The interoperability of UPI and CBDC will **ensure seamless transactions** between a customer and merchant **without having the need to switch between multiple digital platforms**.

It will allow a digital rupee user to **make payments for their daily needs**, such as groceries and medicines, by scanning any UPI QR codes at any merchant outlet.

**Even merchants are not required to keep a separate QR code** to accept the digital rupee payments. They can accept CBDC payments on their existing QR code.

## Central Bank Digital Currency:

A Central Bank Digital Currency (CBDC) is the **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.
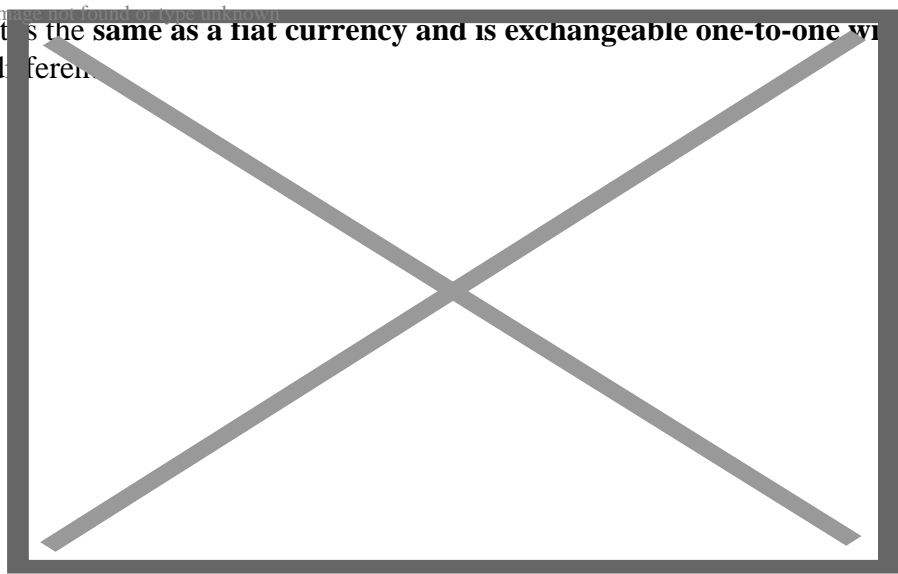
It is **basically the virtual form of a fiat currency** created and regulated by the nation's monetary authority or central bank (Reserve Bank of India)

It is a **digital token or electronic record** of a country's official money.

It is **sovereign currency in an electronic form** and it would appear as liability (currency in circulation) on a central bank's balance sheet.

The underlying technology, form and use of a CBDC can be moulded for specific requirements. CBDCs should be exchangeable at par with cash.

## Benefits:

The e-rupee would **provide public a risk-free virtual currency** that will give them legitimate benefits without dealing in private virtual currencies.

The Central Bank Digital Currency will **help in reduction in operational costs** involved in physical cash management.

The CBDC will help in **bringing resilience and efficiency in the payments system** as CBDC is cheaper to operate and can work under challenging circumstances.

Cash can be used anonymously, without leaving audit trail. CBDC will be monitored by central bank, thus **reducing use of illicit money**.

The RBI is ensuring that **CBDC have offline capabilities** to make it a more attractive and accessible medium of payment.

It will facilitate easy availability of credit to unbanked population in the financial system. This is possible through increasing access to digital payments.

## Challenges:

**Price Volatility**: Susceptible to price changes and a waste of computing resources.

**Lack of Consumer Protection:** Securities and Exchange Board of India Control and the Absence of Dispute Resolution Mechanisms (SEBI).

**Digital Illiteracy**: Indians are currently unprepared to deal with cryptocurrencies.

**Security dangers** cyberattacks on trading systems and wallets (Cryptojacking).

It can be **used for illegal commerce**, criminal activity, and organised crime if it is not properly regulated and monitored.

**Popularity of cryptocurrencies**: The RBI has regularly raised concerns about concerns with private cryptocurrencies like Bitcoin, Ether, etc., including money laundering, financing of terrorism, tax evasion, etc.

## Way Forward:

In order to obviate some weaknesses of CBDCs, the usage should be **payment-focused to improve the payment and settlement system.**

The data stored with the central bank in a centralised system will **hold grave security risks, and robust data security systems will have to be set up** to prevent data breaches. Thus, it is important to employ the right technology that will back the issue of CBDCs.

The **sizing of the infrastructure** required for the CBDC will remain tricky if payment transactions are carried out using the same system.

The financial data collected on digital currency transactions will be sensitive in nature, and the government will have to carefully think through the regulatory design. This would require close interaction between the banking and data protection regulators.