Central Bank Digital Currency

For Prelims: Economic Development, Cryptocurrency, Blockchain, Central Bank Digital Currency (CBDC), Reserve Bank of India (RBI)

For Mains: Central Bank Digital Currency (CBDC) - Opportunities and Risks Associated

Why in News?

According to recent reports, the **Reserve Bank of India's** (RBI) digital rupee — the **Central Bank Digital Currency (CBDC)** — may be introduced in phases beginning with wholesale businesses in the current financial year.

- RBI had proposed amendments to the **Reserve Bank of India Act, 1934**, which would enable it to **launch a CBDC.**

What is Central Bank Digital Currency (CBDC)?

- **About CBDC:**
  - CBDCs are a **digital form of a paper currency** and unlike **cryptocurrencies** that operate in a regulatory vacuum, these are **legal tenders issued and backed by a central bank.**
  - It is the **same as a** fiat currency **and is exchangeable one-to-one with the fiat currency.**
    - A fiat currency is a national currency that is not pegged to the price of a commodity such as gold or silver.
  - The digital fiat currency or CBDC **can be transacted using wallets backed by** blockchain.
  - Though the concept of CBDCs was directly inspired by **Bitcoin**, it is different from decentralised virtual currencies and crypto assets, **which are not issued by the state and lack the 'legal tender' status.**
- **Objectives:**
  - The main objective is to **mitigate the risks** and **trim costs in handling physical currency,** costs of **phasing out soiled notes, transportation, insurance** and **logistics.**
  - It will also **wean people away from cryptocurrencies** as a means for money transfer.
- **Global Trends:**
  - **Bahamas** has been the first economy to launch its nationwide CBDC — **Sand Dollar.**
  - **Nigeria** is another country to have rolled out **eNaira in 2020.**
  - **China** became the world's first major economy to pilot a digital currency **e-CNY in April 2020.**
  - **Korea, Sweden, Jamaica,** and **Ukraine** are some of the countries to have begun testing its digital currency and many more may soon follow.

What are the Benefits & Challenges of CBDC?

- **Benefits:**
  - **A Combination of Traditional and Innovative:**
    - CBDC can gradually bring a cultural shift towards **virtual currency by reducing currency handling costs.**
    - **CBDC is envisaged to bring in the best of both worlds:**
      - The convenience and security of digital forms like cryptocurrencies
      - The regulated, reserved-backed money circulation of the traditional banking system.
  - **Easier Cross-Border Payments:**
    - CBDC can provide an **easy means to speed up a reliable sovereign backed domestic payment** and **settlement system** partly replacing paper currency.
    - It could also be used fo**r cross-border payments**, it could eliminate the need for an expensive network of correspondent banks to settle cross-border payments.
  - **Financial Inclusion:**
    - The increased use of CBDC could be explored for many other financial activities to push the **informal economy** into the formal zone to ensure **better tax and regulatory compliance.**
    - It can also pave the way for **furthering financial inclusion.**
- **Challenges:**
  - **Privacy Concerns:**
    - The first issue to tackle is the **heightened risk to the privacy of users**—given that the central bank could potentially end up handling an **enormous amount of data** regarding user transactions.
      - This has serious implications given that **digital currencies will not offer users the level of privacy and anonymity** offered by transacting in cash.
    - **Compromise of credentials** is another major issue.
  - **Disintermediation of Banks:**
    - If sufficiently large and broad-based, the shift to CBDC can **impinge upon the bank's ability to plough back funds** into credit intermediation.
    - If e-cash becomes popular and the Reserve Bank of India (RBI) places no limit on the amount that can be stored in mobile wallets, **weaker banks may struggle to retain low-cost deposits.**
  - **Other risks are:**
    - Faster **obsolescence of technology** could pose a threat to the CBDC ecosystem calling for **higher costs of upgradation.**
    - **Operational risks of intermediaries** as the staff will have to be retrained and groomed to work in the CBDC environment.
    - Elevated **cyber security risks, vulnerability testing and the costs of protecting the firewalls.**
    - Operational burden and costs for the central bank in managing CBDC.

Way Forward

- In order to **obviate some weaknesses of CBDCs,** the usage should be **payment-focused** to improve the payment and settlement system.
  - Then it can **steer away from serving as a store of value** to avoid the risks of disintermediation and its major monetary policy implications.
- 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 RBI will have to **map the technology landscape** thoroughly and proceed cautiously with **picking the correct technology for introducing CBDCs.**
- 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.

UPSC Civil Services Examination, Previous Year Questions (PYQs)

Q. With reference to "Blockchain Technology", consider the following statements: (2020)

1. It is a public ledger that everyone can inspect, but which no single user controls.
2. The structure and design of blockchain is such that all the data in it are about cryptocurrency only.
3. Applications that depend on basic features of blockchain can be developed without anybody's permission.

Which of the statements given above is/are correct?

(a) 1 only
(b) 1 and 2 only
(c) 2 only
(d) 1 and 3 only

Ans: (d)

Explanation:

- A blockchain is a form of public ledger, which is a series (or chain) of blocks on which transaction details are recorded and stored on a public database after suitable authentication and verification by the designated network participants. A public ledger can be viewed but cannot be controlled by any single user. Hence, statement 1 is correct.
- The blockchain is not only about the cryptocurrency but it turns out that blockchain is actually a pretty reliable way of storing data about other types of transactions, as well.
- In fact, blockchain technology can be used in property exchanges, bank transactions, healthcare, smart contracts, supply chain, and even in voting for a candidate. Hence, statement 2 is not correct.
- Although cryptocurrency is regulated and needs approval of the central authorities, blockchain technology is not only about cryptocurrency. It can have various uses, and applications based on basic features of the technology can be developed without anybody' approval. Hence, statement 3 is correct.
- Therefore, option (d) is the correct answer.

Q. Consider the following pairs: (2018)

Terms sometimes	Context/Topic seen in news
1. Belle II experiment	Artificial Intelligence
2. Blockchain technology	Digital/ Cryptocurrency
3. CRISPR – Cas9	Particle Physics

Which of the pairs given above is/are correctly matched?

(a) 1 and 3 only
(b) 2 only
(c) 2 and 3 only
(d) 1, 2 and 3

Ans: (b)

Explanation:

- The Belle II Experiment is a particle physics experiment designed to study the properties of B mesons (heavy particles containing a bottom quark). Belle II is the successor to the Belle experiment, and is currently being commissioned at the SuperKEKB accelerator complex at KEK in

Tsukuba, Ibaraki Prefecture, Japan. Hence, pair 1 is not correctly matched.

- CRISPR-Cas9 is related to genetic engineering. It is a unique technology that enables geneticists and medical researchers to edit parts of the genome by removing, adding or altering sections of the DNA sequence. Hence, pair 3 is not correctly matched.
- In simple terms, blockchain is a time-stamped series of immutable record of data that is managed by cluster of computers not owned by any single entity.
- Each of these blocks of data (i.e. block) are secured and bound to each other using cryptographic principles (i.e. chain). Blockchain technology allows market participants to keep track of digital currency transactions without central record keeping. Hence, pair 2 is correctly matched.
- Therefore, option (b) is the correct answer.

Mains

Q. What is Cryptocurrency? How does it affect global society? Has it been affecting Indian society also? **(2021)**

Source: IE

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