National Strategy on Blockchain

In January 2021, the Ministry of Electronics and Information Technology (MeitY) released a draft National Strategy on Blockchain. The draft strategy identifies the potential for the adoption of blockchain in India and envisages the creation of a *'National Level Blockchain Framework'*.

Recently, the government of India has listed a bill, namely, *"The Cryptocurrency and Regulation of Official Digital Currency Bill, 2021,"* that will prohibit "all private cryptocurrencies" in India and provide a framework for the creation of an official digital currency to be issued by the Reserve Bank of India (RBI). *Note - The bill has not been tabled yet.

About the National Strategy on Blockchain

Globally and nationally various efforts are being made in implementing Blockchain-based applications. The data structure used in Blockchain Technology helps to maintain an unchangeable record of transactions in a time-sequenced manner. So, Blockchain
Technology improves transparency, immutability and efficiency aspects, which make it
unique and potential to use in various application domains.

The draft is likely to explore the possibility of the use of the technology for vaccine and medical supplies logistics management for future purposes. Virtual and digital currencies such as Bitcoin, however, have been kept out of the ambit of this framework and are unlikely to be included in the near future.

Also, MeitY has supported a multi-institutional project titled *Distributed Centre of Excellence in Blockchain Technology* under which agencies have carried out research on the use of Blockchain Technology in identified domains and developed Proof-of-Concept solutions and piloted them.

What is Blockchain Technology?

- Blockchain is an innovative distributed ledger technology that was first introduced in the design and development of cryptocurrency, Bitcoin in 2009 by Satoshi Nakamoto
- This technology eliminates the requirement of a central entity / third party to validate the transactions over the peer-to-peer network
- Blockchain uses a unique data structure where verification data related to the transactional records is cryptographically secured against tampering and stored in blocks
- Blockchain Technology is going to revolutionize the functionality of B2B, G2C, G2G, B2G services corresponding to various application domains.

Advantages of Blockchain Technology

- Blockchain technology has applications in healthcare, Governance, cybersecurity, automobiles, media, travel, logistics & hospitality, education, legal, energy, smart cities

- Blockchain can be set up in either Public / Permissionless or Private / Permissioned configurations
- Potential Blockchain applications of National interest include:
    - Property Record Management
    - Pharmaceutical supply chain
    - Farm Insurance
    - Public Service Delivery
    - e-Voting
    - Vehicle lifecycle management
    - Electronic Health Record Management
- Blockchain can bring a lot of value addition in e-Governance as it can allow seamless transfer and exchange of data over different departments
- Blockchain can be used to create and enable smart contracts, supply chains for various government processes, trusted inter-department communication and tamper-evident storage

Challenges with Adoption of Blockchain Technology in India

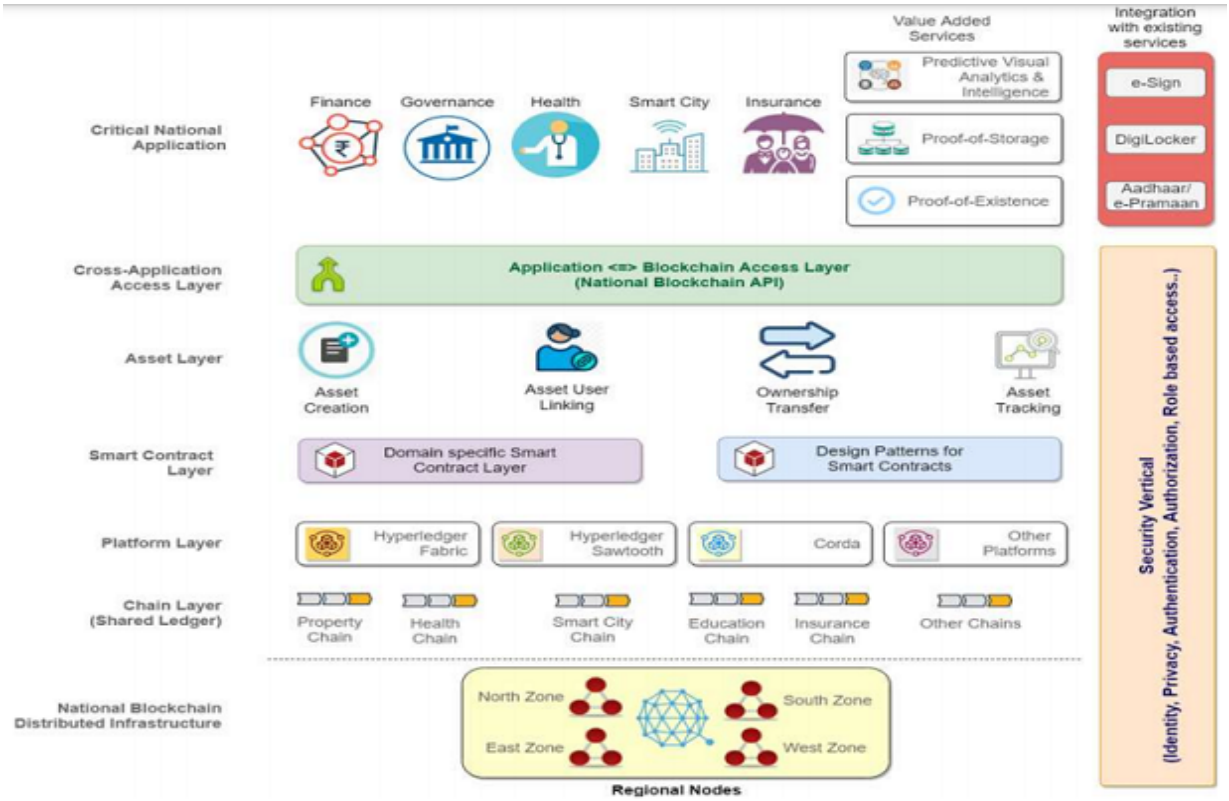
Blockchain technology may encounter various challenges while its adoption in India. Discussed below are the same:

- **Technological Challenges -** The technological infrastructure of the country and the lack of technical awareness is one of the biggest challenges
- **Storage -** Data stored in the Blockchain cannot be modified. This demands very heavy resources in terms of storage and may become an issue as the chain of blocks grow
- **Skillset and Awareness Issues -** Manpower who knows both Domain & Technology is required for blockchain technology management, which may be challenging to find
- **Security, Privacy and Regulation -** Blockchain data is stored on every node on the network and hence privacy is not an inherent feature
- **Legal Challenges -** Thee Reserve Bank of India has put forth restriction with respect to virtual currencies based on Blockchain technology and there is a circular to halt the usage of crypto-currency transactions in India

National Level Blockchain Framework

The National Level Blockchain Framework can aid in scaling deployments for developed applications, emerge shared infrastructure and also enable cross-domain application development.

The image given below displays the National Level Blockchain Framework as suggested by the Ministry of Electronics and Information Technology:



Devising the National Level Blockchain Framework integrated with the following national-level services would be an added advantage:

1. **Online Electronic Signatures (e-Sign) -** It is a Public Key Infrastructure (PKI) based on-lin service. This service helps the citizens for the instant signing of their documents, enabling non-repudiation and in a legally acceptable form
2. **e-Pramaan -** It facilitates authentication and security of citizens while accessing different government applications
3. **Digilocker -** It is an online service delivered under Digital India Initiative. It provides every citizen with an account in the cloud to access documents/certificates.

Blockchain Technology - Global Efforts

Globally many countries have launched platforms and services using Blockchain technology:

- **Blockchain-based Service Network (BSN)** initiative of China aims at helping companies and individuals deploy Blockchain applications faster and cheaper
- The **United Arab Emirates has "Smart Dubai" initiative**, which aims to become "the first city fully powered by Blockchain
- In the **US, Food and Drug inspection** is using Blockchain to address the problem of lack of transparency and security in the health data processing
- **Ethereum** is used by various countries for various reasons:

    - In **Brazil** government announced to move applications and popular voting onto Ethereum
    - **Chile** uses Ethereum to track the data and finances from the energy grid to resist corruption and exploitation
    - Digital IDs in **Switzerland** are offered and registered on Ethereum
- Samsung Blockchain Wallet powered by COSMOCHAIN Blockchain has developed CosmeeDApp for purchasing of contents using cryptocurrency

(Source: https://www.meity.gov.in/)