



Web 3.0: The New-Age Internet

This editorial is based on [“First Principles / Hold the hosannas for web3”](#) which was published in Hindustan Times on 25/09/2022. It talks about the potential of Web 3.0 and related challenges.

For Prelims: Web 3.0, Blockchain Technology, Augmented Reality, Virtual Reality, IoT, Cryptocurrency, Non-fungible tokens, E-commerce, Cybercrime, Genome Sequencing

For Mains: Pros and Cons of Web 3.0, Future Applications and Opportunity for India

Web 3.0 is the third iteration of the internet based on **Blockchain Technology**. The goal of Web 3.0 is to create an **intelligent, autonomous, connected, and open internet**. As we move towards Web 3.0, one major trend is expected to be decentralisation. In essence, it is a concept that **transfers power** from a single person or body to the masses.

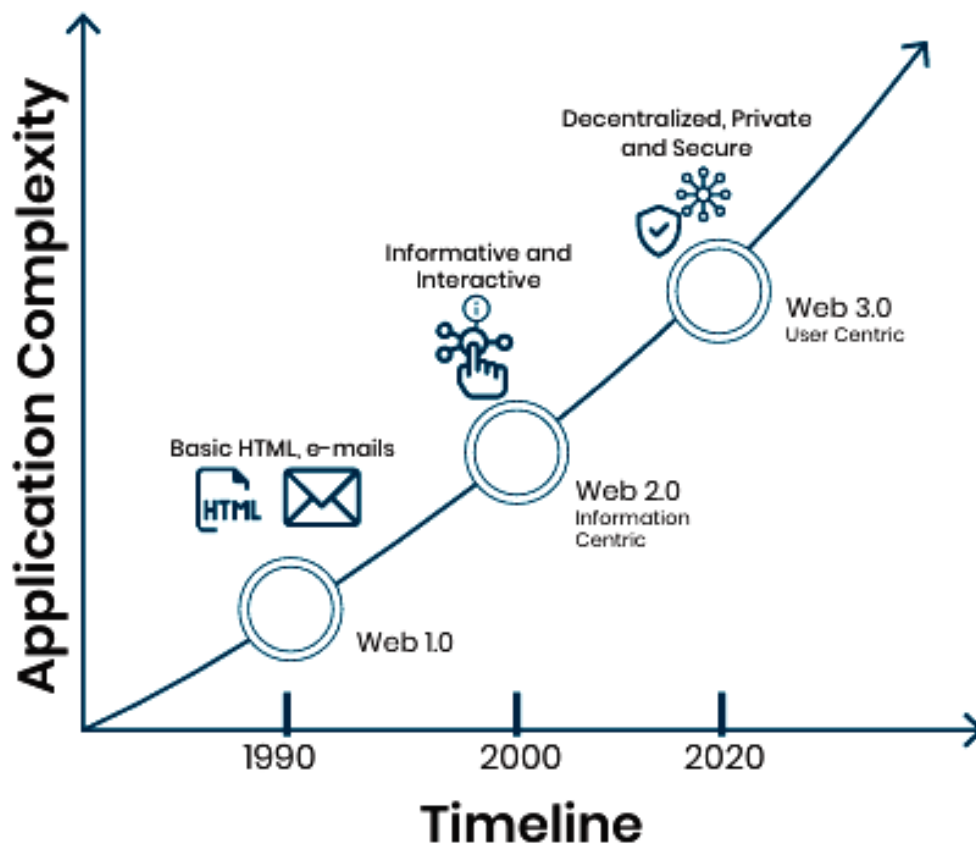
India has been one of the early proponents of Web 3.0 technology. According to the **Cryptotech Industry in India 2021** report by [NASSCOM](#) and [WazirX](#), India is home to more than **230 Web 3.0 start-ups** already.

With the advancement of internet technology with Web 3.0, there is a significant probability of **technology becoming weaponized, cyber threats becoming more prevalent**, and challenges to national security may arise. Therefore, it is vital to examine Web 3.0 closely for its future viability and sustainability.

What are the Different Versions of Web?

- **Web 1.0:** It is considered the first phase, where most of the web accessible to people was **“Read-only”**, allowing users to simply read content and not really interact with it.
 - This included content like **news sites, portals and search engines**.
- **Web 2.0:** With **Web 2.0**, the major new aspect that came into play is **interaction**. The trend of **'liking' something on social media, 'commenting' on videos**, and sharing interesting content became increasingly popular.
 - This also became a phase where **ads started popping on pages**, again based on these data bits, and **monetisation** of content started growing.
- **Web 3.0:** Web 3.0 represents a new phase in the internet's evolution i.e., a **visually dynamic, semantic and spatial Web** with concept of decentralisation, openness, and greater user utility.
 - It combines a bouquet of disruptive technologies such as **blockchain, Augmented Reality, Virtual Reality, Cloud, Edge, IoT, cryptocurrency** and runs on an **AI-based analytics** layer for data-driven insights.

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What are the Pros of Web 3.0?

- **Open and Transparent Network:** Web 3.0 is the open network, all applications and programs are developed using [open-source software](#).
 - Essentially the code for development, which is a virtual resource, is public for the community and the development process is also kept transparent.
- **Seamless Ecosystem:** The centralised control over data by platform companies moves into the hands of the individuals with Web 3.0, using **smart protocols** on blockchain that eliminate the need for third parties.
 - Therefore, pushing a **trustless, permissionless and seamless ecosystem**.
- **Direct Relationship Between Sellers And Customers:** Web 3 technology can also **eliminate middlemen**, allowing sellers and customers to interact directly.
 - [Non-fungible tokens](#) are already enabling much of this, largely in **static digital art**, but the arrangement could easily be **replicated in music, films, and other mediums**.
- **Personalised Experience:** It has the potential to **blur the lines between the physical and digital world**. For instance, in the case of [e-commerce](#) using AI-powered Web 3.0, **sellers would be able to better understand the buying needs**.
 - They will show those products and services to buyers that they are interested in buying. Also, buyers will see more useful and relatable advertisements.
- **Independent Monetization:** In centralised content management, user-generated content typically belongs to the platform it is published but Web 3.0 can empower creators by giving them a better **opportunity to monetize**.
 - About 2 **million professional content creators** in India can benefit from this.

What are the Cons of Web 3.0?

- **Rise in Cyber Crimes:** According to some experts, **regulating Web 3 would be difficult**. They further claim that decentralisation can bring new types of cyber-crime in the picture. It might lead to an **increase in [cyber-crime](#) and [online abuse](#)**, among other things.

- **Cryptocurrency-based crime** remains a significant issue to address, especially given that **rising overall transaction volumes mean the value of illicit transactions** is increasing.
- **Lack of Grievance Redressal Mechanism:** Due to its decentralised nature, it raises a question about whom to approach in case of grievances and who is **accountable for [data breach](#)**.
- **Lack of Censorship Mechanism:** Web 3.0 remains silent on censorship. It might **give birth to obscene and provocative things**.
 - Also, removal of obscene or **[defamatory information](#)**, photos or videos will be challenging for national and international authorities.
- **Scalability Concern:** Scalability of Web 3.0 remains a major concern, since it is based on **blockchain technology**. Due to blockchain technology's **append-only data storage mechanism**, it cannot be modified, and **since demand is increasing, storage capacity is limited**.
- **Regulatory Vacuum:** The Web3 industries are **still navigating the regulatory space in India** which is not cemented as of yet. Additionally, many countries have not yet embraced space and defined clear protocols for its use.

What Should be the Way Forward?

- **Opportunity for India:** India has used **technology in shaping its domestic socio-economic development**. This technology has brought in greater inclusion and impactful societal outcomes.
 - For instance, through **[Aadhaar](#), [Jan Dhan](#), [UPI](#), [CoWin for vaccination](#)**, India has built **low-cost, high-impact tech-for-better-life innovation**.
 - **In line**, India can also **leverage this early development stage of Web 3.0** by leading and playing the role of a catalyst.
 - Web 3.0 can accelerate the value of **[India's digital economy](#)**. With such opportunities, there is a need to encourage and incentivise the startup ecosystem to **position India well on the Web 3.0 Map**.
- **Revitalising E-Citizens and E-Governance:** Web 3.0 can be utilised for better user experience of digital government services as well as **better-quality data for more evidence-based policymaking**.
 - From the government's perspective, **cross-ministerial services can be built more quickly through blockchain technology**.
- **Focus on Interoperable and Ethical Standards:** As all technologies evolve, the evolution of the internet is inevitable, **to make Web 3.0 a strong propellant of global economic growth**, prompt actions need to be taken by nations and industrial bodies to have **open, ethical, and interoperable systems** with solid standards.
- **Decentralised Science (DeSc):** Web 3.0's decentralised nature can be utilised in the fields of **[science and research](#)** to eliminate barriers of patenting and utilising the available resources for global good.
 - For instance, **blockchain technology** was used to store and classify vast amounts of **data relating to the virus's DNA [genome sequencing](#)**.

Drishti Mains Question

Discuss how India can leverage the potential of Web 3.0 for its domestic socio-economic development.