

Web3.0 & Metaverse:

A Playbook for Unlocking Opportunity
in the Decentralised Economy



MESSAGE FROM THE COUNTRY HEAD



The imminent transition into a Web 3.0 world and the rise of the Metaverse are no longer in question. The passing of control from centralisation to the self management mode is also inevitable.

The role of technologies that decentralise control and at the same time facilitate interoperability is currently being forecasted by tech futurists, while corporations are looking with an hawk's eye to harness the consequent innovation and disruption, to retain the not only their current positions but also stretch the borders of their domains.

Web 3.0 and Metaverse aim at the creation of a transactional universe, governed by the principles of self-sovereignty, interoperability, standardised equitable frameworks, security, privacy, speed of operation, enhanced experience and the unlocking of opportunity. As the enablers of transaction and security, the rapid evolution of consequent financial technologies will form the central nervous system of this evolving domain. In this playbook, we seek to uncover impact, opportunity and the burning questions consequent to this intrinsic relationship.

Democracy is both compelling and tenuous; constantly walking the sword's edge in the quest for balance between freedoms and the protection of those freedoms. This movement for democratisation of the virtual landscape is pushing to the fore a whole host of ethical issues that need to be addressed.

For regulators this is akin to the framing of fundamental rights for the larger populace in the connected world while ensuring that duties and their observance are made compelling enough to protect against the subversion of the freedoms that will allow Web 3.0 and the metaverse to deliver on their potential.

Throughout our history, we at the IET have strived to imagine and create engineering and technology led conversations that address the planet's most contemporary and compelling issues. We are driven to harness the vast intellectual pool of engineers the world over, towards our mission of engineering a better world.

In the compilation of this playbook, we have leveraged the perspectives of a host of domain experts from the IET Future Tech Panel's Blockchain Working Group weighing in on unfolding opportunities in this rapidly morphing landscape. We have also tried to distil the essence of their warnings around critical ethical challenges and the resulting complexity in the creation of a fair and equitable operating framework.

This is a beginning. A primer. We hope to see this initial effort evolve. We hope you will lend us your perspective as we attempt to create better understanding and address issues that will help Web 3.0 and Metaverse usher us into the next version of the connected world.

Shekhar Sanyal
Country Head and Director, IET India

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INTRODUCTION

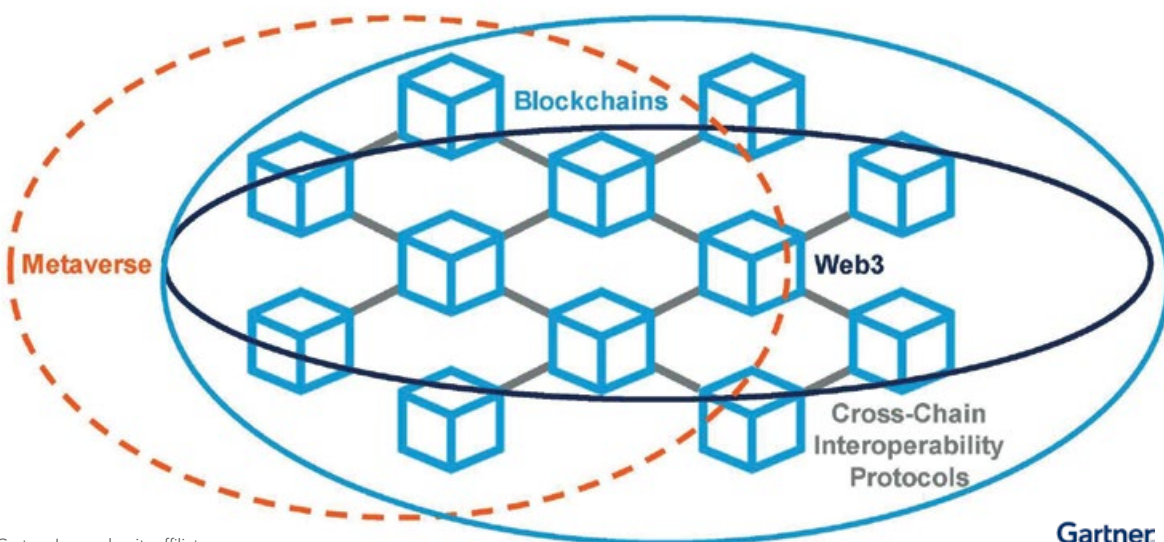
Web3.0, the new era of internet built on blockchain, is at the core of token economy and blockchain based tokenised applications. By 2024, 25% of enterprises¹ will use centrally controlled services wrapped around decentralised Web3.0 applications. Consumers and businesses are already adopting Web3.0 which provides unique capabilities that enable decentralisation and provides benefits to enterprises that want to retain control to meet their business goals.

India is emerging as a leading global player in the Web3.0 market thanks to a competitive talent pool and increased adoption of Web3.0 native products and services. More than 11% of Web3.0 talent is in India. India's upcoming G20 Presidency

in December will provide an opportunity to shape the global regulation on virtual digital assets and Web3.0 policy for G20 member countries. With more than 450 Indian Web3.0 startups, close to \$1.1 trillion of economic value can be added to the GDP by 2032.² India as a country, is well-positioned to harness the opportunities offered by Web3.0 technologies.

This playbook has been created by the Blockchain Working Group of the IET Future Tech Panel. It offers insights into the rapidly changing Web3.0 landscape and recommends solutions to position India as the next global Web3.0 and digital assets hub.

Web3 Sits Atop Multiple Blockchains



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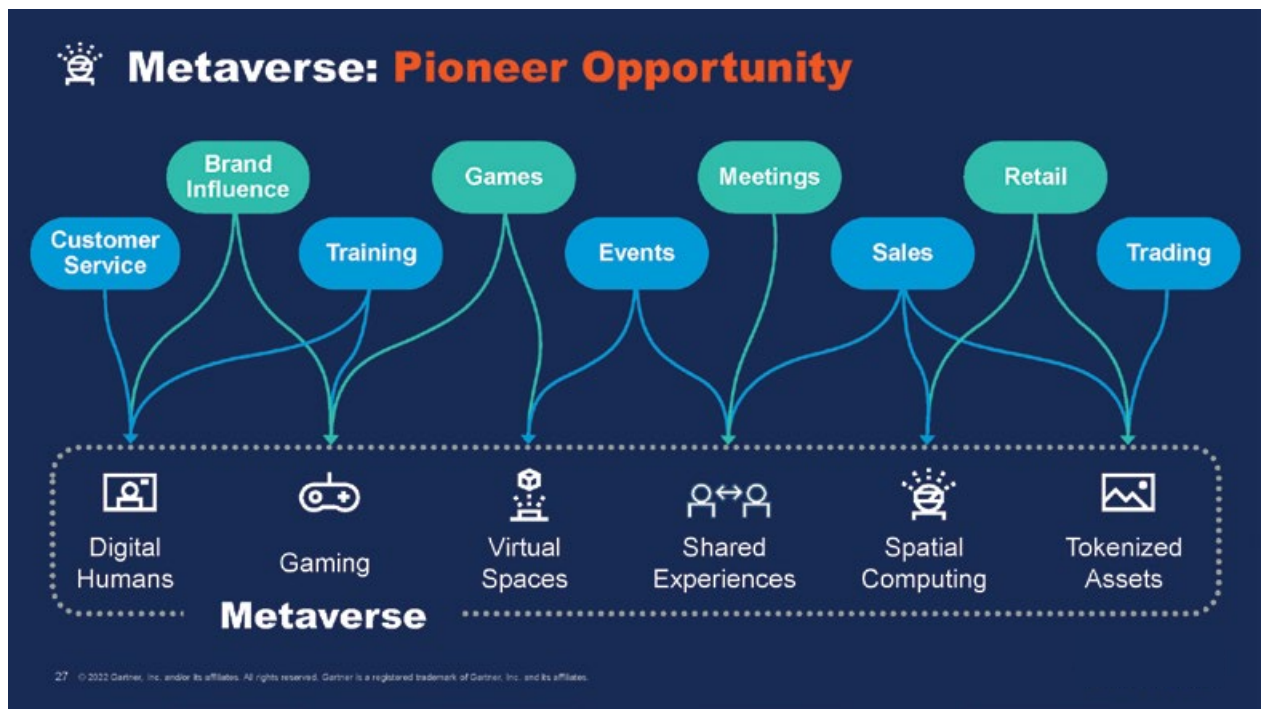
1. Gartner Network Blog, Feb 2, 2022

2. NASSCOM, The India Web3 Startup Landscape: An Emerging Technology Leadership Frontier

What is Web3.0 and Metaverse?

In the 1980s, the first phase of the World Wide Web (Web1) began with open standards. Later, it transformed into a centralised model (Web2) where user data collection and aggregation led to the birth of new proprietary monetisation models for big techs. The fundamental premise of Web3.0

is the decentralisation of business models, thereby reversing the status quo and putting the control back in the hands of users. Disintermediation is the core element of this new iteration of internet and has the potential to transform businesses across domains.



When we talk about metaverse, we also talk about Web3.0 because Web3.0 works on blockchain technology, and with blockchain technology we can create digital scarcity. This way people can own digital assets in the metaverse. Non-Fungible Token (NFTs) are popular examples of digital assets having proof of ownership.³ Unlike Web2.0 where our data is stored in centralised servers owned

by tech giants, in Web3.0 our data will be stored in a distributed ledger system. People will own and control their data and not tech giants who, for over two decades, have been controlling our personal digital data and have been monetising it by selling our data to marketing companies. This is further expected to lead to the democratisation of internet.⁴

“We are engaged with policymakers and other regulators and are here to work with Indian Web 3.0 startups for promoting innovation. The sandbox will create a welcoming environment for all Web 3.0, blockchain and other related startups to come to build their products and check the regulatory boundary laws.”

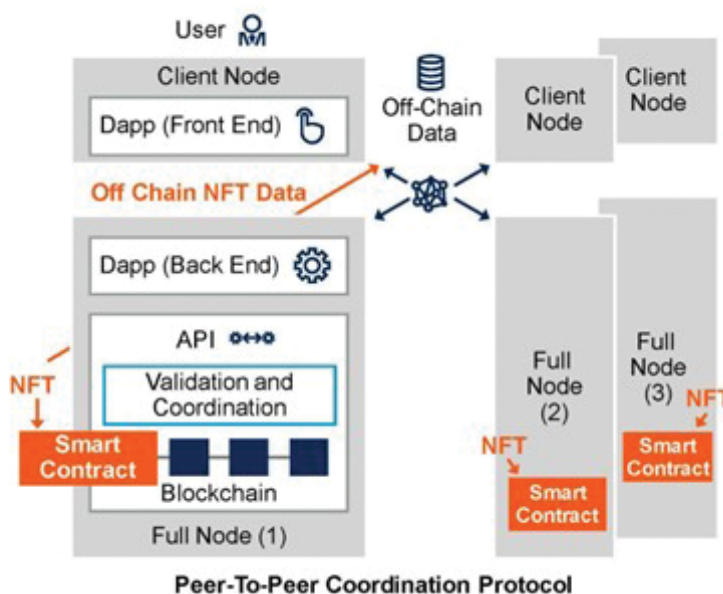
Jayesh Ranjan, Principal Secretary, Industries & Commerce (I&C) and Information Technology (IT) Departments, Government of Telangana

3. Ernst & Young, *The Metaverse Commerce: In Three Dimension*, Aug 2022

4. Forbes, *Ready Or Not, Web 3.0 Is Coming. Bold Banks Can Seize The Opportunity*, March 2022

What Are NFT's?

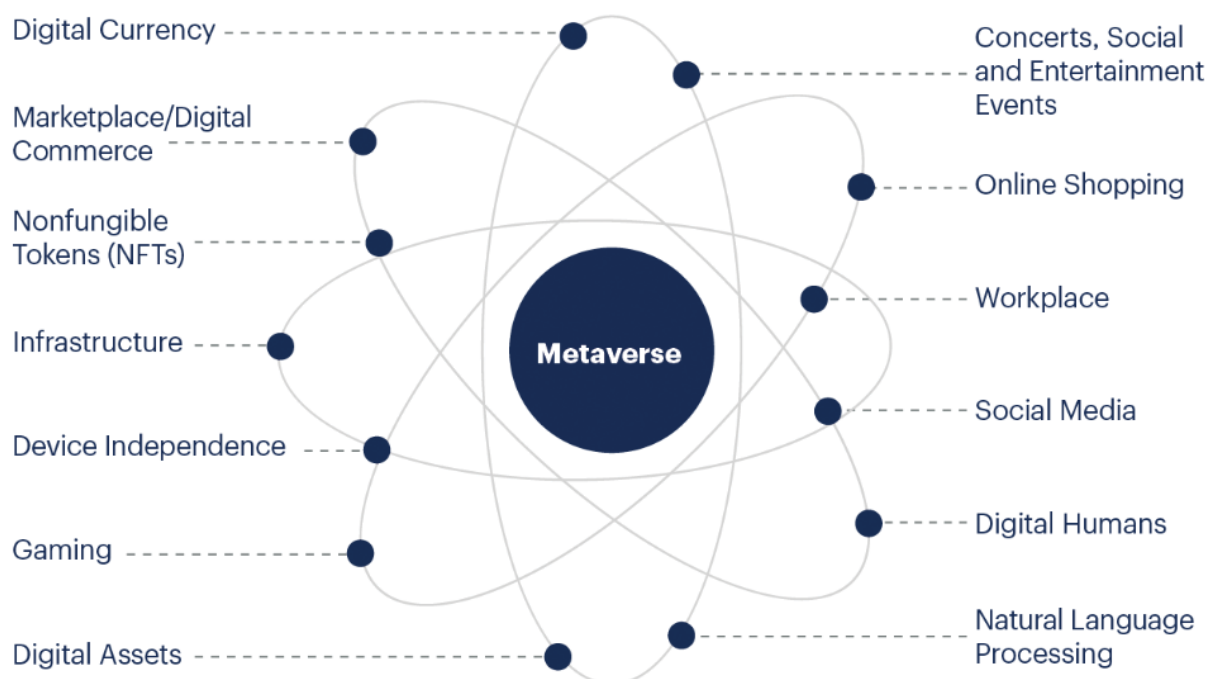
- NFTs are unique programmable digital items that can represent digital or physical entities.
- Ownership is public record.
- Smart contract controls scarcity, creator ownership rights and any other logic.
- NFT metadata and logic stored in smart contract
- NFT data, objects usually linked and stored off chain.



The terms Web3.0 and metaverse are related concepts but represent two distinct themes. A metaverse represents an evolving idea of a digital-native, immersive world where we can

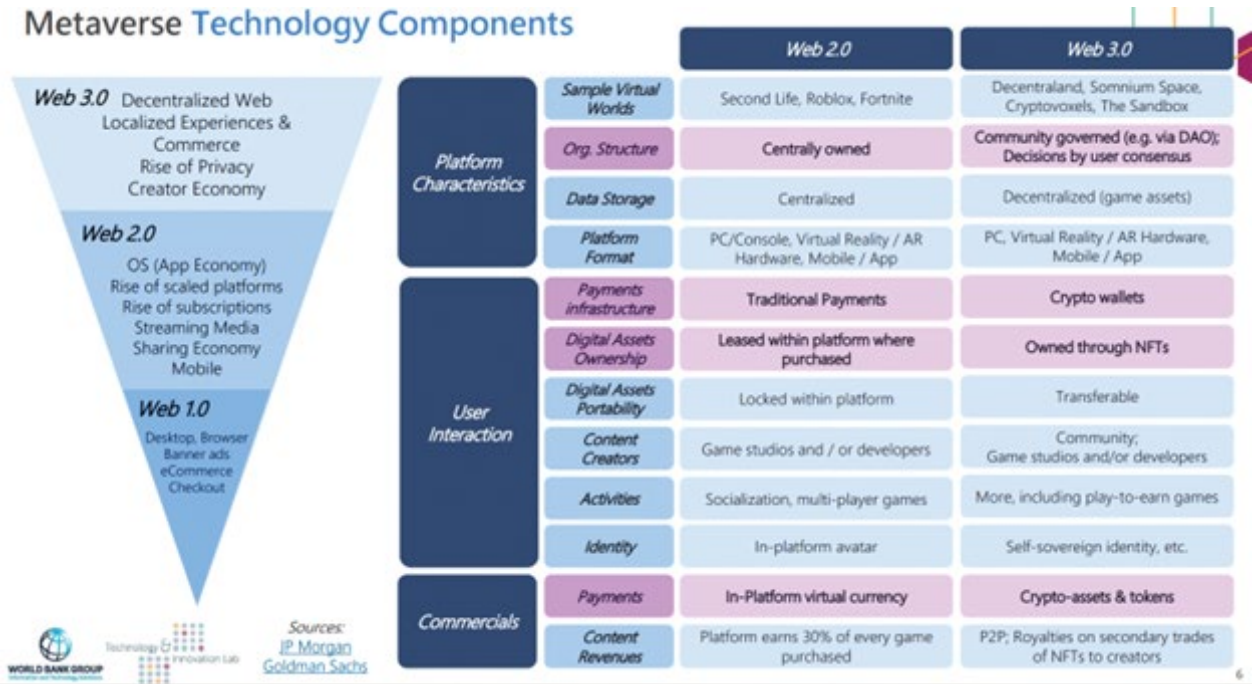
work, socialise and engage in commerce. Web3.0 provides decentralised protocols which can be used to build an open, interoperable, and community-driven metaverse.

Elements of Metaverse :

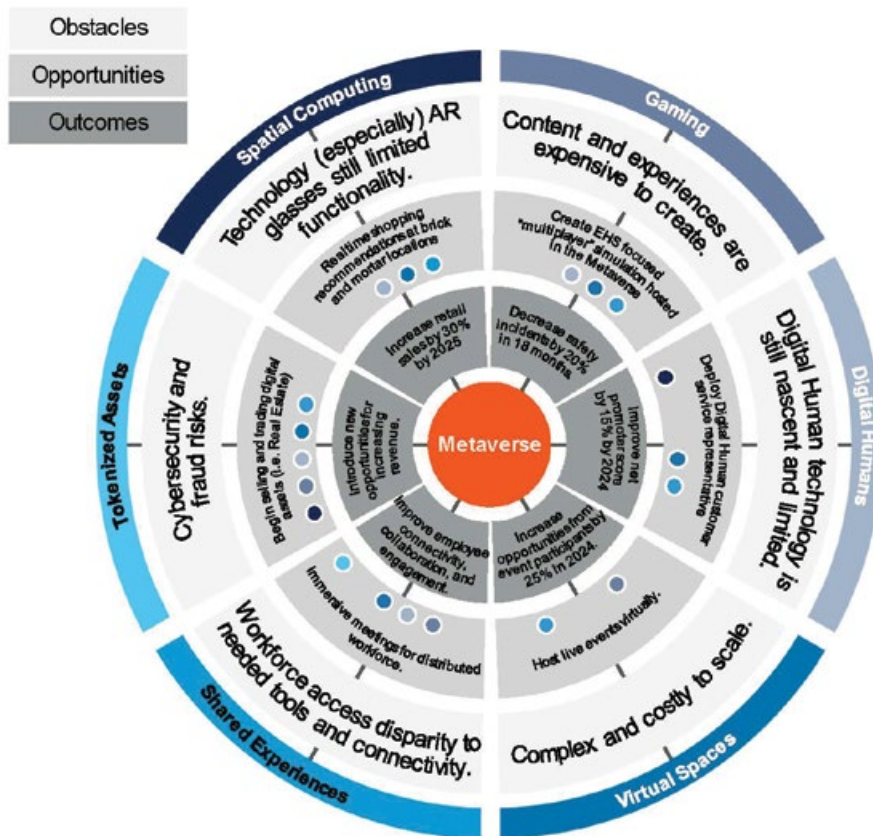


Web3.0 & Metaverse

Metaverse Technology Components



Metaverse Wheel





Monopolisation of Metaverse by BigTechs

Ritchie Torres, U.S. Congressman representing the South Bronx, once remarked, “You know something is profoundly wrong with our economy when Big Tech has a higher take rate than the mafia.” Web3.0 platforms have lesser take rates than their Web2.0 counterparts and big tech behemoths.

Gatekeepers of the Web2.0 world are leaving no stones unturned to monopolise the metaverse and stifle the creator economy. Meta declares that it will charge creators up to 47.5% fee to sell virtual goods in its version of the metaverse. Lofty ambitions of creating walled gardens in the immersive world by

the likes of Meta are nothing short of perversion of the core philosophy of Web3.0- decentralisation and open access. Such predatory moves would kill innovation and drive further inequality in emerging market economies where the digital divide is significant. There is a broader consensus in the Web3.0 community and techpreneurs that tech behemoths should not be allowed to dictate terms in the Web3.0 era.

Can distributed ledger technology help? Let’s find out...



“Web of today has been architected primarily for exchange of information. It doesn’t address exchange of value, monetisation of digital assets without loss of trust, the ability of users to control the web with respect to the content created by them and ultimate engage on the web, in an immersive and near real manner. This is where Web3.0 steps in and addresses inflexibilities of Web 2.0 through Self Sovereign Identities, NFTs, Metaverse and Blockchain. This play book is an excellent effort to demystify the building blocks of Web3.0 and make them relevant to readers!!”

Rajesh Dhuddu, SVP & Global Business Head. Tech Mahindra

BUILDING BLOCKS OF A DECENTRALISED WEB 3.0 ECONOMY



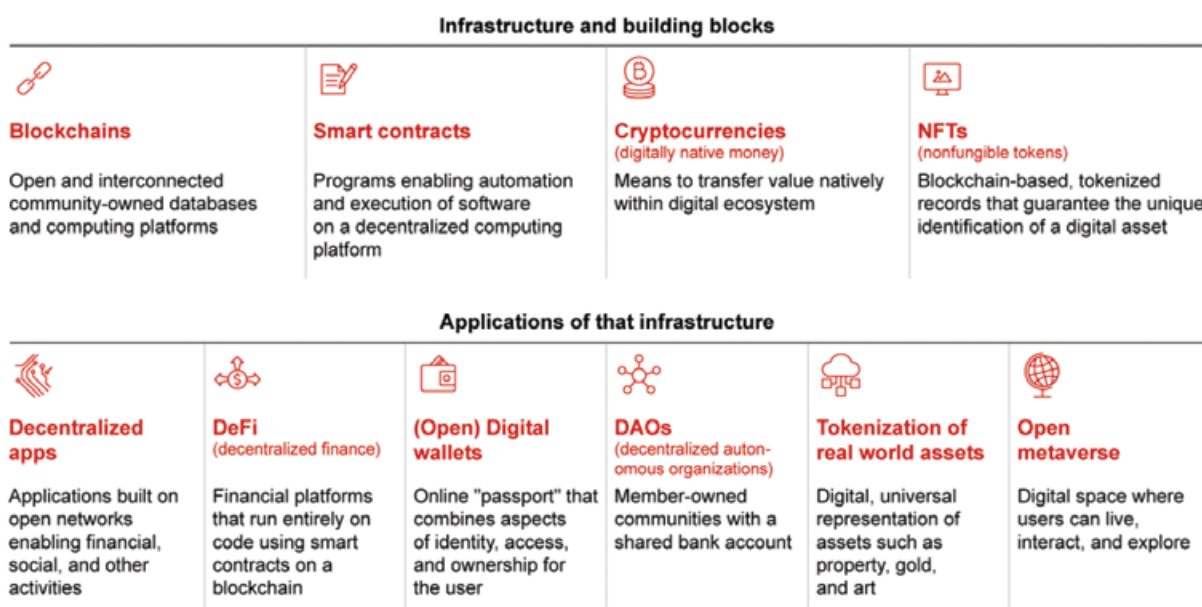
Decentralisation, Self-Sovereignty and Data Ownership

Metaverse, touted as the trillion-dollar opportunity, can realise its full potential only when it embraces the ethos of decentralisation. Goldman Sachs predicts as much as an \$8 trillion opportunity on the revenue and monetisation side of the metaverse.⁵ Morgan Stanley likewise forecasts an \$8 trillion metaverse market in China alone. According to a recent report by Gartner, Metaverse will require a host of technologies and combinatorial innovations to create a persistent and immersive digital environment.

The potential and opportunity presented by metaverse are getting eclipsed by the dangers of monopoly or duopoly of internet giants. There is an imminent threat of monopolisation of the metaverse

by the stalwarts of the Web2.0 era. Entrepreneurs, therefore, need to leverage technology to nip monopolisation of metaverse in the bud.

The first principles of privacy, ownership, and self-sovereignty should shape the Metaverse design. A recent report by leading Web3.0 accelerator and founder community, Outlier Ventures highlights that “true forms of self-sovereign identity are a cornerstone of a decentralised Web and Web3.0. Until you have an identity owned and controlled solely by the user rather than a platform or corporate-owned universal logins like Facebook or Google, you can never have a truly Open metaverse.”



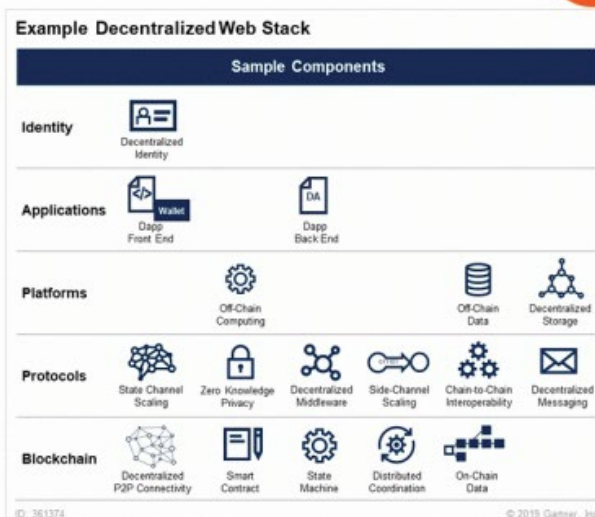
Sources: Bain & Company; Andreessen Horowitz

5. Boston Consulting Group, *The Corporate Hitchhiker’s Guide to Metaverse*, April 2022

Web 3.0: Decentralised Web



- Users are in control of their data & identity
- Displaces platform intermediated interactions (Amazon, Facebook, Google, Uber).
- Built on Blockchain technologies:
 - trust verification
 - privacy-preserving and interoperability protocols
 - decentralized infrastructure and application platforms
 - decentralized identity



Why Self-Sovereign Identity?

Cristopher Allen, Blockchain and cryptography pioneer, and co-author of the TLS Security Standard, underscoring the significance of SSI, has said, “Self-Sovereign Identity is the next step beyond user-centric identity, and that means it begins at the same place: the user must be central to the administration of identity”. An SSI identity model treats the ‘user’ as the central actor. The users control all attributes

linked to users’ identities and associated verifiable claims by leveraging distributed ledger technology. Self-sovereign identities ensure interoperability of identity and can enable instantaneous KYC, and on-chain attestation to reinforce trust necessary for the viability of an open permissionless Web3.0 economy.

Open Wallets: Onboarding the next-billion users for Web3.0 economy

The adoption of Web3.0 is dependent upon the ease of user onboarding and creating a rich user experience for the non-Web3.0 native population. Privacy-preserving and interoperable ‘Open wallets’ can become a game-changer in expanding the growth of the web ecosystem.

In September this year, a consortium of companies and non-profit organisations joined hands together to create an Open-Source Software Stack to advance a plurality of Interoperable Wallets which led to initiation of Open Wallet Foundation (OWF).⁶ The OWF does not intend to publish a wallet itself, nor offer credentials or create any new standards. The community will focus on building an open-source software engine that other organisations and companies can leverage to develop their own

digital wallets. The wallets will support a wide variety of use cases from identity to payments to digital keys and aim to achieve feature parity with the best available wallets.

The OWF has embarked upon a mission to develop an open-source engine to enable secure and interoperable multi-purpose wallets anyone can use to build solutions. The OWF aims to set best practices for digital wallet technology through collaboration on open-source code as a starting point for anyone who strives to build interoperable, secure, and privacy-protecting wallets. The Open Wallet Foundation community is currently working on its governance and structure with the goal of launching later in 2022.

6. Linux Foundation Announces an Intent to Form the OpenWallet Foundation: <https://www.linuxfoundation.org/press/linux-foundation-announces-an-intent-to-form-the-openwallet-foundation>, accessed November 18, 2022

Organisations contributing towards open and interoperable metaverse

Metaverse Standards Forum: Multiple industry leaders have stated that the potential of the metaverse will be best realised if it is built on a foundation of open standards. The Metaverse Standards Forum provides leading standards organisations and companies a platform to foster interoperability standards for an Open Metaverse.⁷

Open Metaverse Alliance for Web3.0: The Open Metaverse Alliance for Web3.0 (OMA3) is a collaboration of Web3.0 metaverse platform creators. Our goal is to ensure virtual land, digital assets, ideas, and services are highly interoperable between platforms and transparent to all communities.⁸

This alliance is:

Community run, decentralised and indexable

Where users will be able to own and use their digital assets (e.g. NFTs), identity, and personal data in a frictionless way across multiple platforms

Where users are in control of their assets, not platform owners

;

Where ideas and services are based on the foundation of decentralisation and interoperability to optimise for individual freedom, social, economic and other sustainable outcomes

Some of the Open Metaverse Alliance for Web3.0 projects include the following:

- Interoperability protocols
- Cross-platform standards
- Transferable metaverse identities
- Defining and promoting decentralisation and ownership rights in the metaverse
- Portal between worlds (mapping, indexing, and wrapping)



“Web3.0 is a harbinger of new opportunities and exciting possibilities. India has a great potential to become an epicenter for Web3.0 innovation. We need a collaborative approach for creating awareness and sharing best practices to harness the full potential of this next generation of web. This playbook by IET is a thought leadership step in that direction.”

Prasanna Lohar, President, India Blockchain Forum



7. <https://metaverse-standards.org/>, accessed November 18, 2022

8. <https://www.oma3.org/>, accessed November 18, 2022



OPPORTUNITIES FOR ENTERPRISES, BRANDS AND MARKETERS

Tokenisation

'Content', 'Platform', and 'Infrastructure' are the three building blocks of metaverse and the creator economy. A virtual economic model, which empowers and incentivises individuals to monetise the digital content by leveraging the metaverse platform tools can benefit creators and stakeholders of an open economy.

Boston Consulting Group (BCG) advocates that there are four broader opportunity areas on the 'Metaverse Flywheel': (a) Creator Ecosystem, (b) Content and Virtual Assets, (c) Technology, and (d) Userbase. Data ownership and monetisation will be crucial to all participants, including financial institutions, consumer brands, enterprises, and individuals, in enabling new business models for the meta-economy.⁹

A research paper by Ark Invest suggests that the monetisation of time spent online will grow at a compound annual rate of 19% with Web3.0 during the next ten years, and yearly online expenditures could reach \$12.5 trillion in the next decade.¹⁰ Data monetisation represents a unique opportunity and problem. Digital native millennials and GenZ customers expect hyper-personalisation, ultra-convenience, augmented experiences, and sustainability from their preferred brands. Consumer behavior forces brands to pivot their marketing strategies towards immersion and personal touch.

Marketers face an uphill task as privacy concerns coupled with third party cookies phaseout have spotlighted zero & first-party data and data partnerships. Non-fungible tokens (NFTs) present an excellent opportunity to tokenise access to rich, immersive experiences and services and drive community engagement. Consumer and packaged goods brands can leverage NFTs to revamp their loyalty and rewards initiatives and capture zero party data cost-effectively.

Tokenised representation of physical goods as digital assets in the metaverse has opened a new frontier to trade non-fungible tokens and digital goods. Web3.0 wallets are becoming integral to digital asset trading and can be improvised to enable users to control their digital assets, identities and payments. Meta has already announced its plans to create a wallet for the metaverse to support identity and payments in virtual worlds. Samsung too is experimenting with organising IDs, keys and crypto assets. An open and inclusive metaverse needs a decentralised approach more than ever to rein in bigtechs.

Decentralised identity management solutions are needed for metaverse platforms to create an interoperable identity management system which would enable users to establish their identity across various metaverses. A blockchain wallet linked to a self-sovereign identity platform can perform functions of credential management as well as facilitate seamless transfer of value across chains.

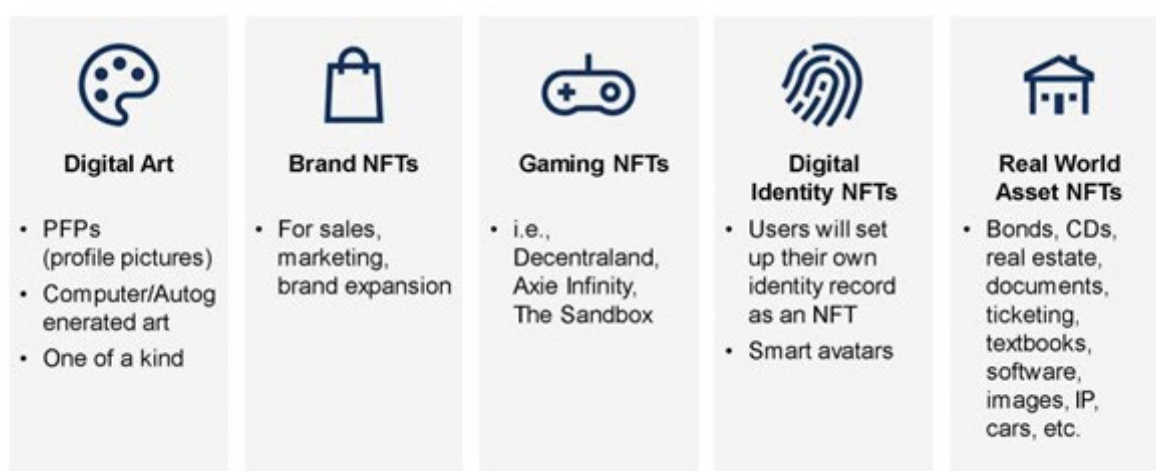
9. Boston Consulting Group, *The Corporate Hitchhiker's Guide to Metaverse*, April 202

10. https://research.ark-invest.com/hubfs/1_Download_Files_ARK-Invest/White_Papers/ARK_BigIdeas2022.pdf, accessed November 18, 2022

With the emergence of MetaFi metaverse and decentralised finance, it is necessary to factor in self-sovereign financial accessibility of users and build Web3.0 tools that can help them assert ownership over their digital identities, personal data, and digital assets across virtual worlds independent of

legacy and proprietary protocols. A user-centric approach towards an open ownership economy built on decentralised protocols and powered by NFTs and crypto-assets is needed to create an all-inclusive user-owned metaverse ecosystem.

What Types of NFTs Do Enterprises Interact With?



GameFi

The word 'GameFi' is made up of two words 'Gaming' and 'Finance' which, unlike traditional video games, combines entertainment with financial incentives. This is made possible by the integration of blockchain because blockchain technology has made digital asset ownership possible.

GameFi works on Play-to-Earn (P2E) Model, unlike traditional video games which work on Pay-to-Play Model. In GameFi, players earn cryptocurrencies, avatars, weapons, costumes and NFTs as rewards by playing games on GameFi which can be traded/transferred on NFT marketplaces & crypto exchanges. In traditional video games, in-game currencies and digital assets cannot be traded

outside of the game and don't carry any value outside the scope of that game because the ownership/control lies with the gaming company.

NFT game: Axie Infinity is one such popular Ethereum-based NFT game released in March 2018. Players can also generate passive income without playing games by simply lending their digital assets to others and charging fees on the GameFi gaming platforms. Metaverse games on 'Decentraland' and 'The SandBox' allow land ownership. This way players can monetise their virtual land by charging other players who visit their land.¹¹

11. Binance Academy, What is GameFi and how does it work? March 2022, <https://academy.binance.com/en/articles/what-is-gamefi-and-how-does-it-work>, accessed November 18, 2022



Creator Economy

In the creative industry, designers, writers, actors, musicians etc. are dependent on producers, publishers, casting directors and other gatekeepers, especially in the traditional mass media industry. However, due to social media and other IT platforms, we today see the advent of independent creative entrepreneurs who showcase their talents and reach out to their fans. The creators engage with their fans and grow their audience on merit. The creator economy has no entry barrier, anyone with a laptop/smartphone and an internet connection can be a part of the creator economy. Due to social. In the creative industry, designers, writers, actors, musicians etc. are dependent on producers, publishers, casting directors and other gatekeepers, especially in the traditional mass media industry. However, due to social media and other IT platforms, we today see the advent of independent creative entrepreneurs who showcase

their talents and reach out to their fans. The creators engage with their fans and grow their audience on merit. The creator economy has no entry barrier, anyone with a laptop/smartphone and an internet connection can be a part of the creator economy. Due to social media, the degree of intermediation has decreased significantly but still, these social media platforms dictate and control the content of creative artists. They take a major cut in the income of the creator.

With the implementation of blockchain technology and the rise of Web3.0, we hope to completely eliminate intermediary platforms between creators and their fans giving complete data ownership to the creators. This way, the economy will not be driven by intermediaries but instead by the original creators. Web3.0 will play a key role in this process of disintermediation.¹²

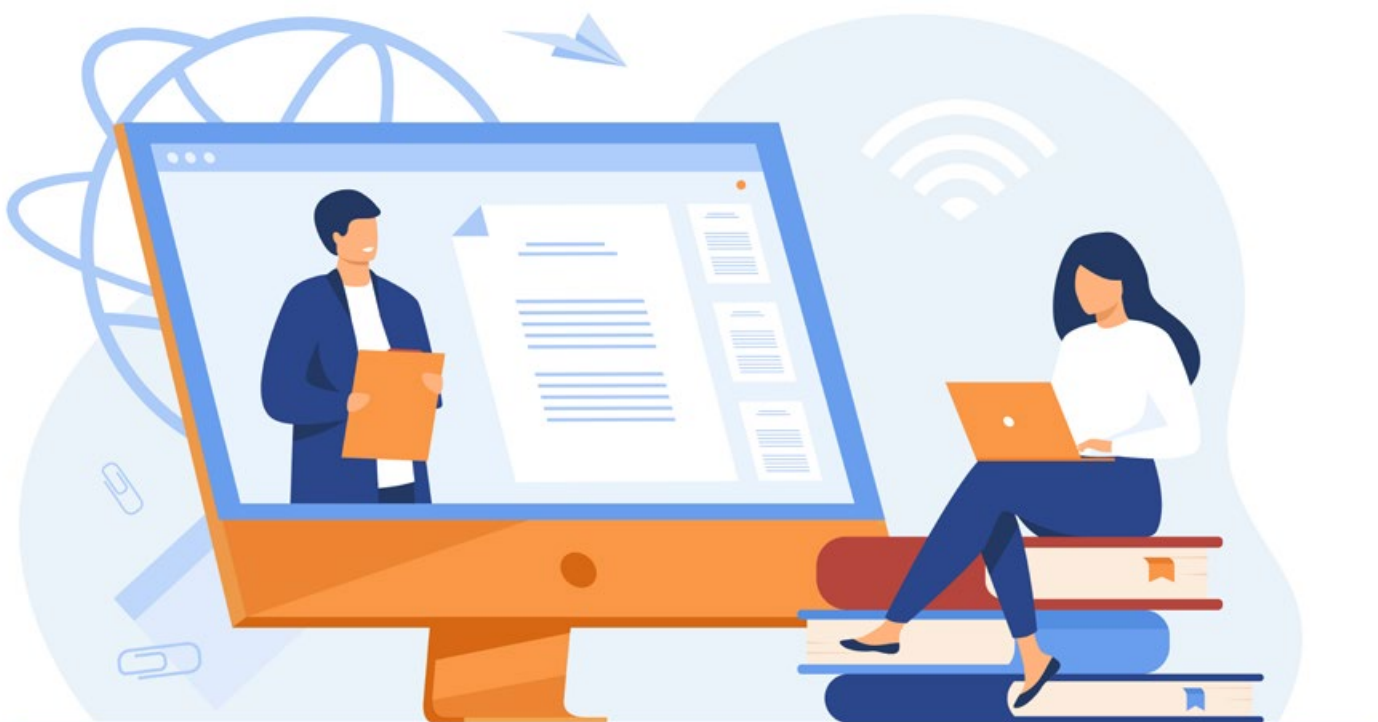
12. Julie Plavnik, 'The creator economy: How we arrived there, and why we need its Web3 upgrade', July 16, 2022

ROLE OF UPSKILLING IN ENABLING GROWTH OF WEB3.0 ECONOMY



The advent of metaverse and convergence of technologies like 5G, AI, Blockchain and AR/VR creates a tremendous opportunity for new career opportunities in the emerging digital world. This puts a lot of focus on the need for skilling freshers as well as experienced professionals on these diverse set of technologies. It is imperative that the

industry and academia should collaborate to build the talent pool for the future. This includes overhaul of curriculum, introduction of value-added courses, faculty upskilling, participation of skilling startups and global benchmarking. This would help us harness the full potential of Web3.0 and help make India a global powerhouse for Web3.0.



RECENT DEVELOPMENTS IN WEB3.0



Corporate Adoption:

The new wave of digital technologies around Web3.0 and metaverse is also finding resonance in what are generally called “old economy companies”. A case in point is the Blockchain Centre of Excellence launched by GMR Innovex, the innovation arm of GMR group of companies. This is a very welcome move because this is a perfect example of a domain rich organisation announcing its intent to adopt digital technologies and also becoming an enabler for other startups. Domain specific consortiums lead by such thought leaders is a welcome sign in the evolution and adoption of Web3.0 and metaverse.



“The playbook for Web3.0 by IET will serve well for the broader industry wanting to deploy and take advantage of Blockchain and Web3.0. For us at GMR, Web3.0 is a critical technology and meaningful given we operate in a multi stakeholder environment. To be able to share and leverage data for the broader benefit of our common end consumer is paramount and need of the hour”.

SGK Kishore, Executive Director (South) and Chief Innovation Officer - GMR Airports at GMR Group

Regulatory Sandbox

The announcement of setting up the Regulatory Sandbox by Government of Telangana has been a very progressive development. The Sandbox aims to help startups in various ways such as providing governed data access and domain knowledge expertise in addition to a platform to build and demonstrate usecases. The Sandbox aims to address the issues and challenges faced by the Web3.0 startups, particularly in the areas of DeFi, Metaverse and Web3.0 related to regulations. Recently, the Government of Telangana has also announced a partnership with RBI.

Industry Association

The potential disruption due to Web3.0 in various industry sectors has left all players in the ecosystem scrambling for some kind of platform that can facilitate a dialogue and hopefully, lead to a consensus in terms of policy making and adoption. The India Blockchain Forum (IBF) has recently been announced as a confluence of thought leaders and key influencers in Indian Blockchain Industry. It draws leaders from policymakers, industry association, corporates, startups and ecosystem enablers. India Blockchain Forum envisions a collaborative model with the government, regulators, industry and academia to help build a holistic framework for successful blockchain and Web3.0 adoption.

What can bank customers expect from the new technology?

- 1. Enhancement of the customer journey:** The metaverse creates new channels for engaging with customers, especially younger, more technologically sophisticated generations. It gives banks a much-needed way to bring faith back into banking and deepen current client connections by getting to know them better. Customers will have the option of visiting virtual branches for high-touch customer service or participating in a bank-sponsored community project.
- 2. Ease Of Transactions:** The new technology can facilitate activities like borrowing money, paying bills, and purchasing investment products and insurance. Moreover, the possibility of conducting KYC verification using metaverse technology cannot be fully ruled out which will further ease the process for retail customers.
- 3. The introduction of new products:** Banks already target NFT-savvy individuals, but marketing responsibilities will change in the metaverse. As people start working together in the metaverse, marketing's relationship with consumers will change from defining to collaborating¹³

However, the ecosystem needs to be further developed, trust must be built, and the metaverse needs norms and procedures, including a distinct value proposition for customers, to match the demands of banking and finance.

13. Vishad Gupta, *How metaverse is reshaping the future of banking industry*, June 16, 2022

BANKING IN METAVERSE: A CASE STUDY



Union Bank of India's foray into the Metaverse:

After JP Morgan, HSBC, and others entered the metaverse banking arena, it emerged as a topic of discussion. The most recent entry into the metaverse was made by the public sector government-owned entity, Union Bank of India (UBI).

At an event in Mumbai in July this year, the launch of the Metaverse Virtual Lounge & Open



Banking Sandbox environment was announced by UBI. This innovative project was started in collaboration with Tech Mahindra. To provide an engaging and immersive customer experience, Tech Mahindra's Research & Development (R&D) division, Makers Lab, constructed Metaverse's 'Virtual Lounge' for the bank in the first phase. The lounge is expected to enable GenZ consumers to learn more about Union Bank of India's services and products in the Metaverse ecosystem and empower them to

explore the bank's products and services in the Metaverse ecosystem. Anuj Bhalla, President and SBU Head, APJI Enterprise, Tech Mahindra's Digital and Cloud Transformation Leader, stated that "Metaverse is going to define the future for digital ecosystems, transforming the way we will work, connect, and interact."

At the launch event, A. Manimekhalai, MD and CEO of Union Bank of India, stated "initiatives affirm the bank's adoption of the latest technologies, including Metaverse, which transforms customers' banking experience to another level". Customers can choose their avatar to visit the virtual lounge that Union Bank of India has established, 'Uni-Verse'. Customers can explore the virtual lounge, which is interactive for users and allows them to look at the bank's many products and schemes.

The bank has also started an Open Banking Sandbox environment where it will collaborate with startup partners and fintech companies to create and introduce cutting-edge banking solutions. Fintech companies and start-ups will have the opportunity to utilise a platform to bring their creative ideas into practice. Sandbox environments give developers and fintechs a platform on which to actualise their ideas.

The first PSU Metaverse Lounge in India 'Uni-Verse'

Tech Mahindra used its network and infrastructure capabilities, as well as its fundamental technology capabilities, such as pervasive artificial intelligence (AI), blockchain, 5G, augmented reality (AR), and virtual reality (VR), to put up this meta lounge (VR). This partnership is consistent with Tech Mahindra's

NXT.NOWTM strategy which focuses on making investments in cutting-edge products and services that facilitate digital transformation, meet shifting consumer needs, and enhance 'Human Centric Experience'¹⁴

Issues with Metaverse in Banking Industry/ Union Bank of India

1. Transactional risks in the metaverse:

Cryptocurrencies or in-game products like Fortnite V-Bucks are used as the currency in virtual worlds; they are not actual coins or bills in the traditional sense. There is no government-backed security against theft or fraud, despite the fact that these assets may be kept in accounts or wallets.

Second, the value of the products and services we buy and sell in the metaverse is less obvious than it is in the real world. A non-fungible token (NFT) or piece of virtual real estate cannot be guaranteed to have value, and there is no right of the consumer to get a refund.

2. Possibilities and practicalities of regulation:

Regulation is either required or feasible for every metaverse. Until the regulation of the metaverse has a genuine global scope, there may not be much prohibiting an offshore-based investment organisation from functioning in its own niche of the metaverse, and people, from accessing it from other virtual worlds.

It takes time for regulation to catch up with technical innovation, and the metaverse is no exception. This indicates that there isn't currently any oversight of the metaverse, which is concerning on several levels. If the metaverse wants to be a sustainable location to live and conduct business while simultaneously safeguarding users from abuse, fraud, and loss, real-world restrictions will be necessary.¹⁵

Previous Cases in Banking Industry before Union Bank of India:

JP Morgan's Approach To The Metaverse:

In February this year, JP Morgan became the first major bank in the metaverse to create a lounge in the blockchain-based Decentraland in an effort to capitalise on a "\$1-trillion" market opportunity. The US bank anticipates that its metaverse branch will enable consumers to explore the "Onyx Lounge," which bears the name of its collection of Ethereum-based services, make virtual avatars, and build up virtual spaces.

14. CRN, Tech Mahindra ties up with Union Bank of India to launch PSU Metaverse Lounge, Uni-Verse, August 1, 2022, <https://www.crn.in/news/tech-mahindra-ties-up-with-union-bank-of-india-to-launch-psu-metaverse-lounge-uni-verse/>, accessed November 18, 2022

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HSBC Launches Metaverse Fund for Asian Private Banking Customers

This was established on April 6 this year with the goal of providing wealthy Asian clients of the bank with investment possibilities with a metaverse theme.

This was conceptualised by Lina Lim, the Asia-Pacific head of discretionary and funds, investments, and wealth solutions at HSBC. Lim set out to develop a brand-new product that would offer HSBC the competitive edge in this industry and draw well-heeled investors from all around the region. The mechanism will only be accessible to high net worth and ultra-high net worth professional and accredited investor clients of HSBC in Asia. HSBC Asset Management will oversee its management. **"The next iteration of internet is a long-term structural theme that should have a place in every portfolio"** said Lina Lim, HSBC.

Potential use of Web3.0 & Metaverse in Banking

The business opportunities of metaverse and Web3.0 are immense and like all other players, banks too are investing in the technologies behind Web3.0 and metaverse. The obvious question is- what will traditional banks and other financial services firms gain from this endeavour?

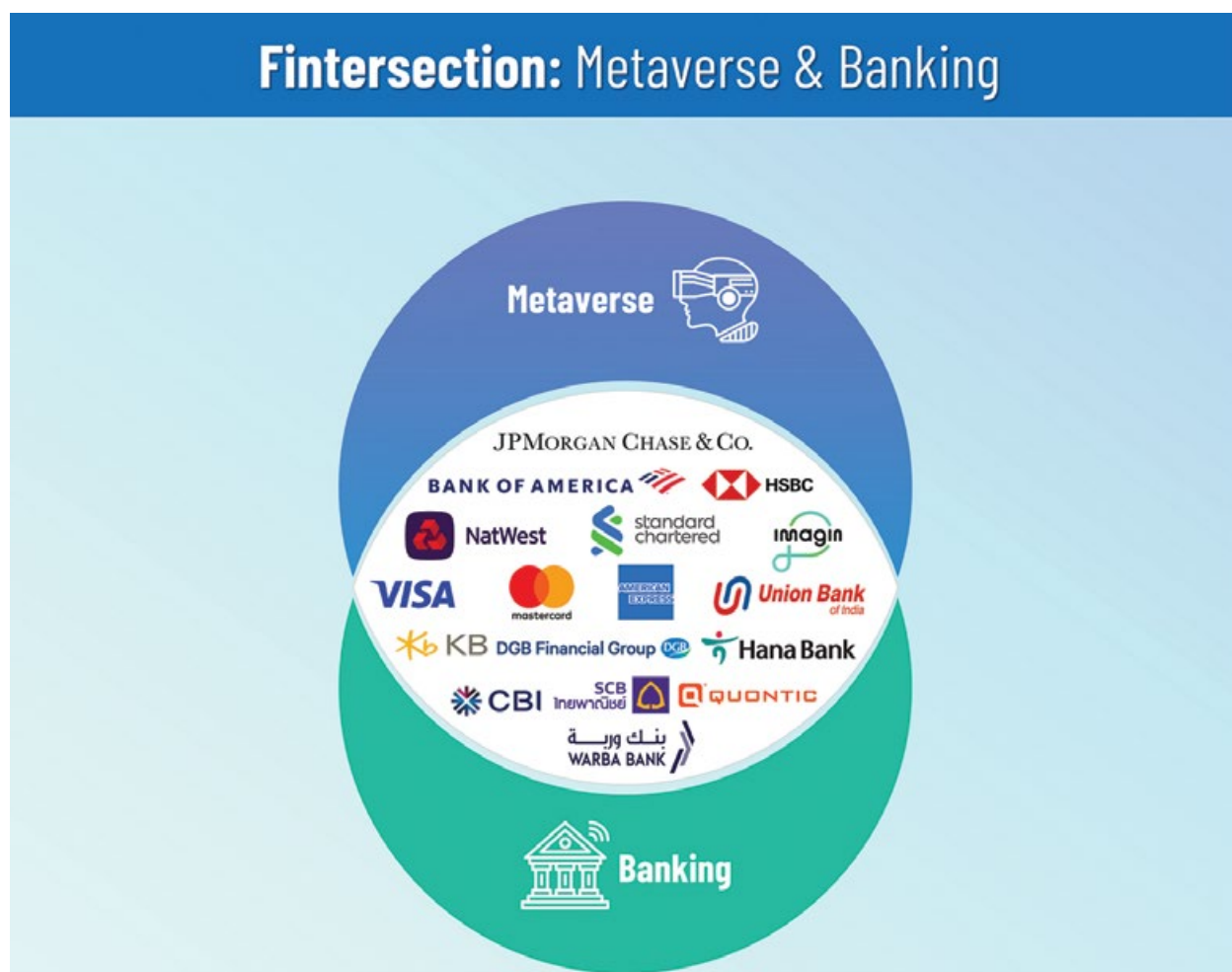
Digital scarcity using blockchain technology would create a new business model in the metaverse allowing people to have digital ownership. Like banks provide credit and custodian services for physical assets, banks could do the same in the metaverse for digital assets. People giving physical and financial assets as collaterals, can now explore the possibility of ownership of digital assets, with banks extending their definition of eligible collaterals for loans.

Banks can enhance and enrich the digital banking experience of customers by extending their financial services in the metaverse where users

can own digital property, buy their unique avatars, play games and meet friends virtually. Banks can provide remote advice to their clients for financial planning and wealth management in the metaverse. Customers will not just be banking on a mobile screen they will be in an immersive 3D environment. AR/VR technologies will play a key role in the adaption of the metaverse.

Customers can perform their transaction activities in the metaverse through mobile wallets linked to their bank accounts. These mobile wallets can hold much more than just fiat currencies. We cannot really be sure of the choices people will go ahead and make amongst traditional fiat currencies or cryptocurrency or Central Bank Digital Currencies (CBDCs). However, metaverse will definitely be a reality and banks should act fast to grab their share of business opportunities in the metaverse.





Recent Cases¹⁶

1. Aug 2021: VISA purchased its first NFT, CryptoPunk 7610 for \$150,000. The NFT is an avatar of a female character. What makes her unique is her mohawk, her large green eyes and her bright red lipstick. The purchase deal involved a third-party seller whose identity was not disclosed, the transaction was executed via an Ethereum smart contract.
2. Oct 2021: Bank of America decided to provide VR training in 4,300 financial centers to train its 50,000 employees in day-to-day tasks to complex tasks by simulating client-facing banking activities in a virtual environment. The training included: strengthening client relationships, managing difficult situations and responding with empathy to clients and customers. With real-time analytics embedded in the training module managers could very easily identify skill gaps and provide personalised guidance to their employees.
3. Feb 2022: JPMorgan Chase & Co. opened its Onyx lounge in Decentraland where one can see a digital portrait of its CEO Jamie Dimon. The Onyx lounge is in Metajuku, which is a virtual version of Tokyo's Harajuku shopping district.
4. Mar 2022: HSBC acquired a virtual plot of land in an online gaming space called The Sandbox. This way HSBC can engage with sports, e-sports and gaming fans in The Sandbox. HSBC is slowly reducing its physical presence in the real world and increasing its virtual presence as its customers adopt digital banking technologies.
5. Apr 2022: American Express filed patents to extend its real-world services like card

16. References included in Appendix

payments, ATM services and other banking services to customers in the metaverse.

6. Apr 2022: NatWest launched 'Portrait of Success' in the metaverse to challenge the stereotypes in society surrounding female entrepreneurs. 'Portraits of Success' is a virtual gallery in the metaverse hosted on Spatial.io showing 30 portraits of female entrepreneurs from a diverse set of businesses across the UK.
7. Apr 2022: Mastercard filed 15 cryptocurrency, NFT and metaverse-related trademark applications according to US Patent and Trademark office. Mastercard applied to trademark its virtual cards and payments in the metaverse. Their trademark application also included an application to allow them to create NFTs, create an NFT marketplace and a marketplace for crypto assets in general.
8. Apr 2022: Standard Chartered Bank Hong Kong (SCBHK) acquired a virtual plot of land in The Sandbox Mega City district, a virtual culture hub inspired by Hong Kong talents.
9. Jun 2022: Kiya.ai launched Kiyaverse, which is India's first metaverse for banking. Kiya.ai is a digital solutions provider to Indian financial institutions and governments. The Kiyaverse plans to have tokens as NFTs and support CBDC to enable open finance in a Web 3.0 environment.
10. Jul 2022: Union Bank launched a virtual lounge, 'Uni-verse'. Customers can roam around the virtual Lounge, get information on deposits, loans, Govt. Welfare Schemes, Digital initiatives etc. as if they are in the real world. The bank also launched Open Banking Sandbox environment to collaborate with Fin Techs and Start-Ups for developing and launching innovative banking products.

POLICY ROADBLOCKS: IS INDIA READY TO RIDE THE WEB3.0 WAVE?



Web3.0 is a nascent industry which is currently in the development phase. Like any other industry, the focus at this stage is primarily on building infrastructure or protocol layers which will subsequently act as the foundation of the industry. Realising the potential of Web3.0 and the urgency of creating a supportive regulatory environment at the right time, many countries - including countries from Asia - have announced their Web3.0 strategy. For instance, South Korea has reportedly introduced a 'Metaverse Promotion Bill' on Sep 1, 2022 which

will create a 'Metaverse Policy Review Committee' reporting to the Prime Minister. The Committee will discuss and deliberate on various policies to promote development of metaverse in the country. Dubai also announced its Metaverse strategy in July this year and aims to increase the number of blockchain and metaverse related companies in the country by five times and create 40,000 virtual jobs and add \$4 billion to its economy in the coming five years.

Development / Adoption of Web3.0 in India

India currently does not have any comprehensive legislation regulating blockchain or cryptocurrencies. The Finance Act, 2022 has introduced new provisions relating to taxation of income from transfer of Virtual Digital Assets (VDA) which is the only crypto specific law presently applicable in India. A new Section 115BBH was introduced into the Income Tax, 1961 (Act) which levies 30% tax on any income from transfer of any VDA and provides that no deduction in respect of any expenditure, other than the cost of acquisition, allowance or set-off of loss will be allowed while computing the income from transfer of VDAs. In addition to Section 115BBH, Section 194S requires any person buying VDA to deduct 1% Tax Deducted at Source (TDS) on the consideration being paid to the seller of the VDA.

Section 2(47) defines VDA very broadly wherein the necessary requirements for any instrument to fall under the definition are (edited to simplify):

1. any information or code or number or token,
2. providing a digital representation of value exchanged with the promise or representation of having inherent value, or functions as a store of value or a unit of account, and
3. can be transferred, stored, or traded electronically.

Members from different industries raised concerns over the unintended consequences of such a wide definition and highlighted that many existing vouchers, codes, loyalty points etc. which are prevalent in the industry may now amount to VDA attracting 30% tax. Appreciating the concerns of the industry, the Central Board of Direct Taxes (CBDT) issued Notification No. 74/2022 dated June 30, 2022 and excluded many virtual assets including gift cards, vouchers, loyalty points, rebate or promotional program etc. from the scope of the definition of VDA under Section 2(47) for tax purposes.



RECOMMENDATIONS

Imposition of 30% tax on transfer of VDAs has significantly hampered the development and adoption of Web3.0 in the country. The objective of imposing a 30% tax on VDA, treating the income in categories similar to the income from lottery, gambling or betting, was primarily to discourage speculative investments and to protect investors. The purpose of the law was never to create an impediment in the development and adoption

of blockchain as a technology. In fact, the central government and many state governments have supported the use of blockchain technology in various spheres of social life, industries and even in dispensation of public services. The National Blockchain Strategy released by Ministry of Electronics and Information Technology (MeitY) has identified many use-cases of blockchain to be adopted by different departments and authorities.

Need and justification for tax exception/ exemption

The definition of VDA under Section 2(47) does not allow room to consider use-based exceptions and treats 'transfer of VDA' in every situation in the same manner.

Exception 1: Exception to VDA used in development

Considering the primary objective of the law and the need to promote use of VDA to the extent required to build and develop infrastructure and protocol layers of Web3.0, a nuanced exception in this regard must be created. VDAs bought and used in building, developing, testing, researching for the development of Web3.0 projects should be excluded from the definition of VDA. Presently, even paying gas fee – which is in the nature of a service fee to the usage of the protocol – may amount to 'transfer' of VDA. If a project buys and holds any VDA even to just pay the gas fee, tax may apply if there is an increase in price of that VDA by the time the VDA is used to pay the gas/transaction fee. Since every 'transfer' of VDA triggers a TDS liability on the seller, many of these transactions will also require compliance with TDS obligations if the buyer is an Indian resident.

Exception 2: Utility tokens

Most of the Web3.0 projects create an ecosystem for creating, using, and transferring some form of 'value' which may be denominated in any crypto currency /token. Projects may issue their own currency / tokens or may integrate usage of any existing crypto currency / tokens.

The currency/tokens issued by many Web3.0 projects can only be used within their ecosystem to obtain certain privileges, benefits, rewards, NFTs, points, objects in metaverse or access to certain benefits or services. For instance, the native token of a particular Web3.0 gaming project may be used to buy a particular skin, dress, or gun in the game.

Under the existing tax provisions, every currency/ token issued by a Web3.0 project, irrespective of the usage and characteristics of the Web3.0 tokens, falls under the definition of VDA and is subject to 30% taxation.

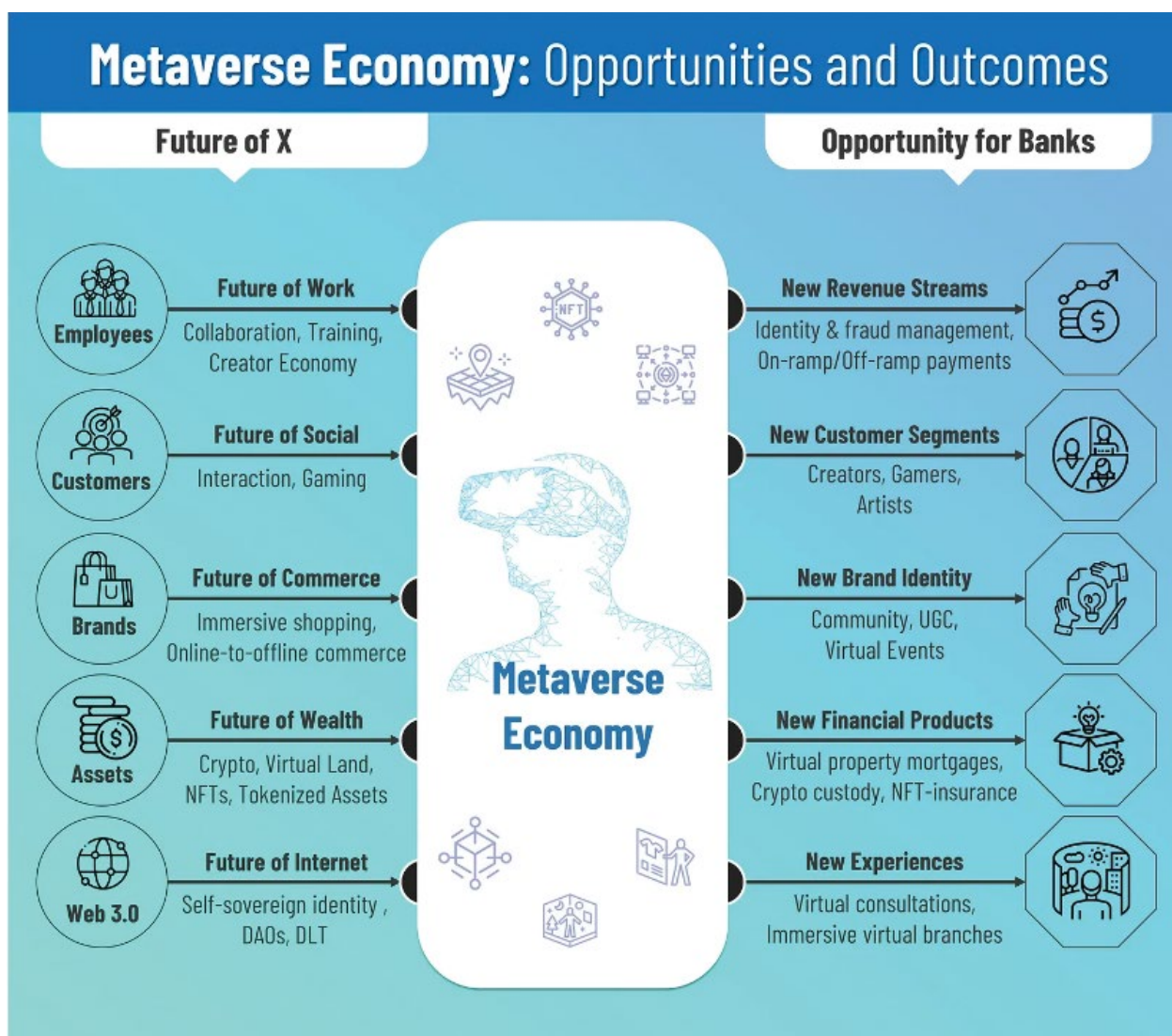
It is pertinent to note that digital assets like gift vouchers, loyalty points, coupons etc. which were excluded from the definition of VDA seem to have similar functions compared to the Web3.0 tokens

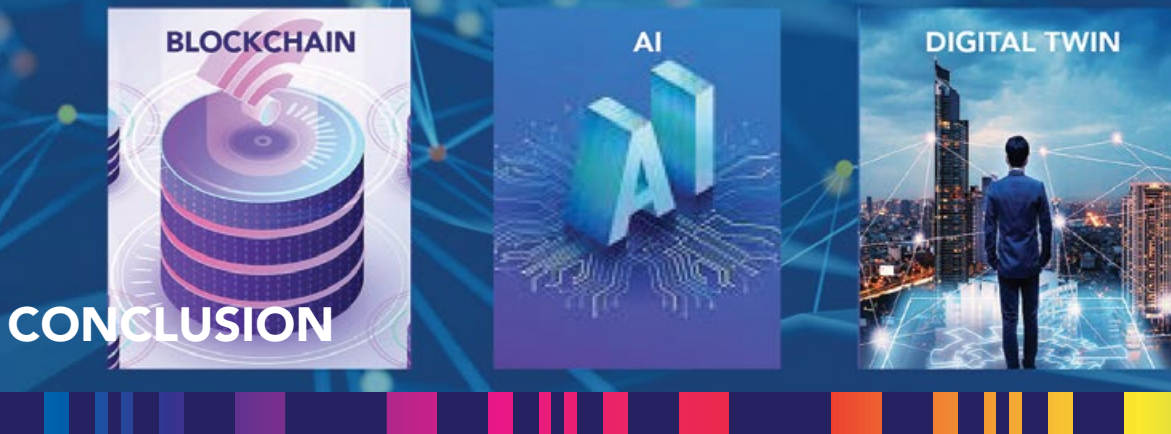
which can only be used as 'utility' within its closed ecosystem. Notification No. 74/2022 extended recognition to the already prevailing products and does not cover Web3.0 native products/instruments which discharge similar functions and have the same characteristics.

Usage or character-based distinction are well accepted in Indian tax jurisprudence. Even in crypto specific context, crypto regulations in many jurisdictions including USA and Singapore have specified different licensing and regulatory requirements for different cryptocurrencies based on their use case. For instance, the Financial Services and Markets Act, 2022 of Singapore creates an exception from licensing requirements applicable to other VDAs for 'limited purpose digital payment token' – which includes reward

points, in-game assets or other tokens which can only be exchanged for goods and services by any specified issuer or merchant. Even in the United States, a distinction between 'security' tokens and 'utility' tokens seems to be acceptable in principle though the scope and definition of both the categories of tokens are currently under dispute.

Arguably, the utility tokens issued by many Web3.0 companies may fall under the exception, but the regulatory uncertainty and gray area involved in the matter is still keeping many established companies or institutions away from exploring potential benefits of Web3.0 for their business. A notification from the CBDT / Hon'ble Finance Ministry, may be in the form of a clarification, will be extremely helpful for the industry.





The invention of the transistor in 1947 spurred a whole new industry of electronic devices. The advent of the internet gave rise to the digital economy. The introduction of the iPhone in 2007 spurred an era of smartphones. The white paper- "Bitcoin- A Peer-to-Peer Electronic Cash System" by Satoshi Nakamoto in 2008 gave rise to the cryptocurrency market. The future of cryptocurrencies is uncertain but the blockchain technology behind crypto is finding diverse use cases and is the foundation of Web 3.0.

The important role of financial intermediation is performed by our traditional banks for centuries. We have come through financial crises like the Great Depression, the Subprime Crisis, the Asian Crisis, the Russian Economic Crisis and many more where our banks failed us but still, we continue to transact via our banking system because despite all the shortcomings our banks are the least bad mediators. Web3.0 is built with the basic premise to have no intermediaries. People transact directly with one another and own their data on

the internet. Web3.0, metaverse, NFT, Creator Economy and GameFi are related technologies and ideas complementing one another to enhance our digital experience, all made possible because of blockchain technology.

Technology should not suffer at the altar of regulation. Regulators should regulate Web3.0 apps and avoid regulating Web3.0 protocols. An innovation friendly regulatory framework is necessary to foster the growth of Web3.0 ecosystem in the country. Creating certain tax exceptions based on usage and characterisation of the VDAs will help the Indian Web3.0 industry immensely and will catalyse development of important protocol / infrastructure layers of Web3.0 in India. Regulatory sandboxes both at central and state level can bolster innovation and spur adoption of Web3.0 native digital products and services. Enterprises and startups should join hands together and contribute towards building open-source standards aimed at interoperability, ownership and inclusion to power the meta-economy.

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The Institution of Engineering and Technology (The IET)

The IET is one of the world's largest professional societies for engineers, headquartered in the UK. It is a 150-year-old organisation that works closely with industry, academia and government in its mission to engineer a better world. In line with this, the IET also has specific global initiatives around key sectors that are relevant to solving problems that impact the society at large. In India, the IET has over 5,000 members and has wide ranging activities in alignment with the overall global IET strategy that also includes sector focus in areas such as Future technologies, Future of Mobility and Transport, as well as the Future of Work. Shri Ratan Tata, Former Chairman Tata Sons, N R Narayana Murthy, Chairman Emeritus, Infosys and T V Ramachandran, President, Broadband India Forum (Ex-Resident Director, Vodafone) are Honorary Fellows of the IET in India.

The IET is working to engineer a better world by inspiring, informing and influencing our members, engineers and technicians. IET India started operations in India in 2006, in Bangalore. With our members, we are driving innovation and change in the fields of engineering and technology. We research, investigate, review and analyse the industry's challenges, proposing solutions that will have a significant impact on the world for years to come. Our strategy is to make a meaningful impact on the overall competency and skill levels within the Indian engineering community and play an influencing role with the industry in relation to technology innovation and solve problems of public importance. We want to do this by working in partnership with industry, academia and government, focusing on the application of practical skills within both learning & career lifecycles, driving innovation and thought leadership through high impact sectors. Our volunteer led panels are means through which we deliver our strategy.

IET Future Tech Panel

The IET constituted a think tank called the IET IoT Panel in 2015 with representation from leaders on the Internet of Things (IoT) space to evangelise IoT and help accelerate its adoption in India.

Within 6 years, the panel was able to engage key ministries with the government of India, contribute to policies as well as influence stakeholder action across the ecosystem. The panel also organised 4 successful editions of IoT India Congress dubbed as the most important event for technology stakeholders in the region, which has had combined attendance from over 6,000 attendees from around the globe.

While all of this is indeed encouraging, we are constantly recalibrating our influence and impact – globally. We believe that IoT is indeed an all-pervasive technology and are proud of the role we have played in building awareness and deployment in our region. However, we believe that in the coming years (and we can already see evidence) that IoT alone will not suffice. AI, Blockchain, ML, VR, robotics, digital twin, amongst others, are taking centre stage and the use-cases that are coming in are fascinating.

Therefore, we decided to pivot and scale our focus to technologies beyond Internet of Things. With this in mind, we recast our panel in 2020 to be called as **"The IET Future Tech Panel"** which we believe will help us become more inclusive for those technologies that need development of country-wide roadmaps and ecosystem building. With this, we also hope to be able to reflect the Institution of Engineering and Technology's global legacy and connects. The panel works through 16 Working Groups currently – Artificial Intelligence, Blockchain, Robotics, Open Digital Innovation Cyber Security, Digital Communication, Water, Healthcare, Manufacturing, Retail, Skill Development, Smart Cities, Social Impact, Standards, Legal and Regulatory, BFSI and Energy.

In 2022, we elevated the IoT India Congress event to **IET Future Tech Congress** event which we believe would help us become more inclusive for those technologies that need development of country-wide roadmaps and ecosystem building. Our aim through this event has been to create a sustainable tech roadmap for India by bringing together the industry, academia, government, policy makers, and start-ups together on the same platform. This playbook is an effort in this direction.



The Institution of Engineering and Technology is one of the world's largest engineering institutions with over 168,000 members in 150 countries. It is also the most multidisciplinary institution– to reflect the increasingly diverse nature of engineering in the 21st century.

The IET is working to engineer a better world by inspiring, informing and influencing our members, engineers and technicians. Over the last decade, The IET led think tanks in India have been at the forefront of constructing neutral platforms that work closely with academia, industry and the government to create feasible roadmaps built around segments like Future Technologies, Future of Mobility and Transport, STEM and Education. Being a neutral non-commercial platform, we are able to get various industry leaders from competing organisations as well as representatives of the academia and government on the same platform to build implementable roadmaps.

The IET's think tanks are led by member volunteers who passionately want to create positive impact in these areas through technology. If you are interested to play an active role in shaping the future of technologies in India, please write to us at ujanighosh@theiet.in or gunjanpahuja@theiet.in