# WEB3 AND DIGITAL ENTERTAINMENT: A TECH AND POLICY BRIEF FOR INDIA

# CON-TENTS

# INTRO-DUCTION

The era of Web3 is often discussed in terms of finance, economy and technology. Along with these industries, the entertainment industry has also been rapidly evolving with the changes made possible by Web3 technologies. A range of applications, from online gaming to the music industry are adopting Non-Fungible Tokens (NFTs), crypto tokens and virtual reality to change the status quo and also bring about new avenues to interact with their audiences.

There are changes in payment systems, security, nature of ownership and more that are set to change the way the entertainment industry functions currently. In this primer, the third in our series, we will first explore why the entertainment industry can undergo changes in this paradigm. Then we will look at different arms of the entertainment industry (like gaming, music, etc.) and examine their progress with appropriate examples. Finally, we will look at the challenges that are very specific to the entertainment industry in this paradigm.

# 2 HOW CAN ENTERTAIN-MENT CHANGE?

The nature of assets and interactions in Web3 changes significantly due to the vast decentralisation that is predicted to occur due to the technologies in this paradigm. Some of these changes, that will impact our understanding of intellectual property, will be:

- The ability to record when the intellectual property has been created immutably.
- The ability to track the transactions that occurred regarding an intellectual property immutably.
- The possibility of fractional ownership of intellectual property (like F-NFTs).
- An uncharted territory for intellectual property rights in the virtual world.

Let us take a deeper look into why aspects of intellectual property are set to change in the Web3 paradigm that can affect the way entertainment works in this era.

## A. Security in Web3

The realm of security is vastly different in the Web3 paradigm than its predecessors. Web3 is built on technologies such as blockchain and smart contracts. Examples of such technologies would be cryptocurrencies, the metaverse, etc. From its inception, the technology of blockchain was founded on aspects of security.

On a blockchain, all transactions are recorded in a distributed and secured manner.

There also exists variations in blockchain such as private or public blockchains that can provide different levels of privacy. Smart contracts have internal mechanisms which are triggered only when certain conditions are met. These conditions are built into the protocol of the blockchain system and, depending on the governance model of the blockchain, can only be changed after voting and consensus. Thus, the technologies of Web3 are touted to be more secure and private than its predecessor.

# B. Ownership

## Decentralised Ownership of Intellectual Property

In the Web3 paradigm, ownership is decentralised. Due to the existence of technologies like blockchain and smart contracts, artists can directly sell their artwork to the buyers and ensure that their ownership is safe and secure through blockchain. They can also ensure that they are compensated everytime the artwork grows in value through smart contracts. A piece of work can also be co-owned by the artist and other stakeholders - thus using fractional ownership to fund the creation of that work.

Buyers who buy an NFT do not buy the copyrights to that intellectual property. But a person can become a co-owner of that artwork. And since digital goods are being exchanged, scarcity for the good is created in the form of a limited number of owners of the product. Thus, there are new relationships being created between the creator, funders, buyers and users of the product. The nature of their roles in the marketplace is changing due to the change in the nature of ownership in Web3.

## Ownership in Virtual Worlds

Ownership in the virtual world is significantly different from ownership in the real world. There exist many simultaneous virtual worlds. Unless there is interoperability established between these metaverses, a buyer cannot claim universal ownership of a digital property. Also considering the concept of digital twin, it creates an environment where virtual goods need to reflect the state of the real-world goods and vice versa. This prompts the need for mechanisms where ownership between the real-world and virtual world digital twins need to be addressed.

Furthermore, the borderless nature of the metaverse poses the opportunity for everyone in the world to buy property anywhere in the metaverse. But there are regions in the

world where the use of cryptocurrency is banned or where citizens do not have the means to access these technologies. This makes it difficult for persons from certain regions to buy property in these virtual worlds, thus creating ground for inequality in these early days of metaverse adoption.

# C. Payment Systems

## A New Vision for Payments

In the Web2 era, payments are enabled through the presence of intermediaries between the two parties involved in the transaction. These intermediaries are banks, payment gateways, etc. They not only facilitate the transactions, they also create the rules under which these transactions take place. Both the parties involved in the transaction are well recorded in some form of digital/physical paper trail and these parties are not anonymous to the intermediary. Therefore, we also see that privacy surrounding these transactions is minimal because Government arms (like tax offices) and banks have access to this information.

A lot of this changes in the Web3 era. Blockchain technology enables peer-to-peer transactions - removing the need for an intermediary between the payer and the payee. Blockchain technology also provides intrinsic security in its transactions, thus eliminating the need for an intermediary to establish trust and rules for safety and security of the users. There are two ways where the parties involved in the transactions can be anonymous:

- **NON-TRACEABILITY FROM PUBLIC KEY TO REAL-LIFE IDENTITY:** Some blockchain ledgers are public - which means that anyone can view the transactions that have occurred on that particular blockchain. This means that a series of transactions that have occurred on the blockchain are traceable to the public key that carries out those transactions. But one cannot trace the public-key to the corresponding user who carried out the transaction through their digital wallet - thus, enabling anonymity. An example of this kind of anonymity is seen in the cryptocurrency called Bitcoin.

- **PRIVATE CRYPTOCURRENCY:** Another emerging payment system that maintains anonymity is through private cryptocurrency. The name might be misleading - it

leads one to believe that anonymity is achieved through a private blockchain. But that is not the case. These networks are very much public but they achieve anonymity through obfuscating their transaction details and hiding IP addresses. A popular example of this is the cryptocurrency called Monero.

## Decentralised Finance (DeFi)

Decentralised Finance refers to the applications that offer financial services with the use of distributed ledger technology, such as blockchain and smart contracts. Refer to Primer 1 for more detailed information. With DeFi, we see that new forms of payments can emerge. For example, the blockchain social media application called Steemit incentivises users to create and curate content by compensating them with the STEEM cryptocurrency. We will explore this further in Section 3.

# D. Monetisation in Web3

## What is Content Monetisation?

Content monetisation is when a user on the Internet generates revenue by creating, curating and publishing content. In current times, this can occur in many different ways. Some of the major ways in which a earn is by:

- Producing content on a platform like YouTube or Instagram and earning by monetising their content and advertisements.
- Producing content on streaming platforms like Twitch and obtaining donations from their viewers.
- Courting sponsorships for their content.

Therefore, the relationship between the content creator and the user is quite unilateral. Content is made available to the user from the creator and there is little to no direct interaction between the creator and their consumer.

## Social Tokens

Social tokens (also called 'community tokens') "are tokens backed by the reputation of an individual, brand or a community." These tokens are a type of crypto token. They are fungible (unlike Non-Fungible Tokens) and are issued by a certain individual or a community. Given that they are fungible, there is scope for these tokens to be similar to each other. In the context of entertainment, a social token is a way for the content creator to provide special access to their fans. The fans can buy these social tokens from

the creator and unlock special rewards such as a video call, a limited edition collectible, unreleased artwork, etc.

What does this mean for the content creator? Currently, content creators interact with their users through centralised platforms - such as YouTube, Instagram, Twitch, Spotify. The creators put their content on these centralised platforms and the consumers consume this content from these platforms. Therefore, there exists an intermediary between the creator and the user (/fan/consumer). But with the help of a social token, the content creator can directly interact with their user.

# 3 TYPES OF DIGITAL ENTERTAINMENT IN WEB3

## A. Online Gaming

### Gaming in Web2

There has been a recent uptake in gaming in India. One of the reasons is the COVID-19 pandemic which confined more people to their houses and provided them with more leisure time. In FY 2021, there were as many as 450 million gamers in India and that increased to 507 million gamers in FY 2022. India also had the highest share of game downloads globally, which constituted around 17% of total global game downloads. Along the same lines, Paytm First Games also reported that they saw almost 200% increase in their user base during the pandemic. India has a huge uptake in terms of gaming and it is only set to increase, with the gaming market predicted to reach $8.6 billion in FY 2027.

On a global level, we can attribute much of the online gaming permeation to a type of games called massive multiplayer games (MMOs) where many users can play the

game simultaneously and interact with each other. Examples of these kinds of games are Fornite, Minecraft, Call of Duty, PubG, etc. Given that downloading most of these games is free, how do these games generate a high amount of revenue? Majority of the revenue is through a popular channel called in-game purchases where users purchase skins, special items or new characters in the game. It is estimated that in-game purchases in India will grow at a rate of 34% CAGR, thus boosting the economy of online gaming heavily. Many of these games also have native currencies which are used to carry out other activities. While these currencies might not have any real-life value, users might be able to convert these currencies into real-life fiat money in some games.

## Gaming in Web3

How does the Web3 paradigm change how traditional gaming looks like? In-game currencies can be shifted from native currency to a cryptocurrency. One such example is the Axie Infinity game where players can play and earn the native cryptocurrency called Smooth Love Potion (SLP). They can, then, use this cryptocurrency on virtual assets or convert it into real-life fiat money.

Additionally, users can also buy skins in game as NFTs. Skins are ornamental objects (such as gun buddies, different colours and designs of guns, different clothes and accessories for the characters) that elevate the gaming experience. NFTs are non-fungible and are, hence, unique. Thus, if trading is enabled in the game, then these NFTs can end up being huge investments for the gamers.

## Gaming and Metaverse

One of the main entry points and adoption ground for metaverse is online gaming. As explained in the origins of metaverse in Primer 2, gaming played a huge role in the development of metaverse. Pokemon Go was one of the predecessors of metaverse. It used the technology of augmented reality. After its release in July 2016, the game saw as many as 250 million people joining the game per month to play it. Metaverse can blur the lines between virtual and real, providing a cohesive way to experience events in the game through technology. Since metaverse is built on the premise of offering an immersive experience to its users (as opposed to a 2D flat screen), gaming has the immense potential to be an early adopter of this technology.

Currently, there is no interoperability between different cryptocurrencies. One cannot use the Bitcoin currency on the Ether blockchain network. Similarly, there also exists a lack of interoperability between the different metaverses built by different companies and between different games. One cannot use a skin bought in Minecraft in the Fortnite game. Once this interoperability between different metaverses and games is enabled, then users should be able to trade, rent, buy, sell or equip different skins amongst their pool of games. They could also be used as collateral in the metaverse!

The metaverse, while a huge patron of online gaming, is not only limited to gaming though. We will explore entertainment in the metaverse in the following section.

# B. Metaverse

Because metaverse is an imagining of a new paradigm of existence that is virtual, it also creates new avenues of entertainment beyond what is possible in the current world. It also moulds the current forms of entertainment to its paradigm. Let us explore both of these kinds of entertainment.

## Metaverse and Current Forms of Entertainment

**LIVE EVENTS:** Primer 2 talks about how BTS, Ariana Grande, Imagine Dragons, Daler Mehendi have all held concerts in the metaverse that were attended by a massive number of people. Additionally, comedy shows and sports events (including esports events) can also now be watched live remotely with accompanying gear (like a headset) through an immersive experience created by the metaverse.

**GAMING:** We have already explored how gaming is set to change with an immersive experience provided by the metaverse in the previous section. Entry of cryptocurrency also changes the way in which in-game purchases and trading occur in online gaming. The possibility of interoperability between games and metaverses also creates a great investment opportunity for gamers and other metaverse users.

**INTERACTIVE MOVIES:** Interactive movies would bridge the gap between reality and fantasy. The audience is no longer just a passive spectator of the content. Metaverse provides the opportunity to be an active character in the movie interacting with other characters. This way, metaverse can potentially blur the lines between a movie and a video game.

## Metaverse and New Forms of Entertainment

**MULTISENSORY IMMERSION:** As of February 2023, we can only experience two senses in the metaverse: sight and sound through video and audio respectively. A headset that an individual wears can help that person enter a virtual reality where they can experience visual and auditory experiences. There are many start-ups and engineers that are working on bringing the other three senses into the metaverse fold: smell, taste and touch. If successful, these advancements can help create a truly immersive experience where the user can experience all of the five senses in the virtual reality of the metaverse.

**METAVERSE TOURISM:** Metaverse tourism is the form of tourism that occurs in the immersive world of metaverse. This form of tourism is not yet a reality and will depend upon the advancement of technology. People will be able to visit the virtual counterparts of real-life tourist attractions. This can act as a way to promote in-person tourism. It could also help serve in other use cases, such as checking out of rental properties, visiting inaccessible worlds like outer space or fictional cities - thus, again, blurring the boundaries between video games, interactive movies and tourism.

# C. Social Media

Earlier in this primer, we encountered the example of Steemit - a blockchain-based social media application. On this platform, one can sign up and share content - like pictures, videos, etc. Other users can vote or comment on any post. Posts that receive likes and comments are awarded with the cryptocurrency Steem. Users can also move to license their own content. This social media application is a new platform that makes use of technologies that are associated with Web3. Steemit is a DApp that runs on on-chain governance - where the rules of the governance of the application are built into it through smart contracts. Thus, the application is decentralised - meaning that there is no centralised entity (like a CEO, CFO, directors, etc,) calling shots on how to move forward. There is a voting system within the application and that decides the course of the application. These elected witnesses, who can vote, possess Steem tokens that can enable their decision-making role. In 2020, Justin Sun of the Tron network decided to buy the platform Steemit in secret, which angered the holders of the governance tokens. What ensued after this was a war between Justin Sun and the witnesses who had the voting power.

This story illustrates the power of decentralisation in the emerging technologies of Web3. Steemit decentralised its operations and put some power in the hands of its users through some in-built mechanisms. Steemit shows that cryptocurrency can help users earn through social media and also have some power to take control of the platform they are on. Aside from payment for content and voting power, Web3 social media platforms also offer better privacy, ownership of content by the users and a potential wider market through interoperability.

# D. Music (Streaming Services)

In the current world, the music industry is quite skewed in terms of the power dynamic between the intermediaries and the artists. Intermediaries are entities such as record labels that provide the artists with support to launch their music, manage their time and curate their communities. Artists, in most cases, neither receive the significant profits from the work they have produced nor do they fully own the music that they produced. Therefore, artists who are not phenomenally successful get little bargaining power and control over their art and funds.

## Music Production and Distribution

There are new ways of music production and distribution that are emerging as a result of the technologies in Web3. Take the example of the Camp Chaos at the SongCamp. 80 artists (musicians, designers, distributors) came together to create 21000 music NFTs over a period of 8 weeks. The revenue generated from selling these NFTs - both from primary markets and secondary royalties - will directly flow to the artists through a smart contract - thus, eliminating an intermediary that oversees this process.

Another striking example of the possibilities in Web3 for the music industry is seen in the project of Song That Owns Itself (STOI). STOI runs on the Algorand blockchain network. It is envisioned as a Decentralised Autonomous Organisation (DAO) where artists, fans and any other collaborators can fund and co-own a piece of music produced by the artist. The smart contract in the protocol will ensure that the revenue generated from the music is directed to the wallets of all of the co-owners of the song. The project is in its preliminary stages and has released three songs as of February 2023. Therefore, this vision of STOI realises the power of fractional ownership, tokens and decentralisation that is possible through Web3 technologies.

## Music Consumption by Listeners

The way listeners consume music is also set to change. In the current world, listeners either buy music or stream it on music platforms. Artists like Imogen Heap and Snoop Dogg have sold their music as NFTs, on a marketplace called OpenSea, to the listeners - thus opening a new channel of consumption of music for the users. Mixtape Social is one such music application which claims that the listener can compensate the artist directly through tokens called Mixtape Tokens (much akin to Utility Tokens). Thus, we see that Tokens and NFTs can also be used to unlock other special benefits such as interviews with the artist, limited edition merchandise, unreleased music, etc.

Listen-to-Earn is akin to the concept of Play-to-Earn. Under the umbrella of Play-to-Earn games, users are rewarded for playing a game by finishing quests, upgrading to newer levels, unlocking characters, etc. Axie Infinity is an example of such a game. Similarly, Listen-to-Earn is an offering of the Web3 era that allows listeners to earn money for listening to music and podcasts. An example of such an application is 'Foundation' where listeners earn Bitcoin (called sats or satoshis) for the first hour of the content they listen to every day.

# 4 POLICY CHALLENGES

## A. Intellectual Property

Under the current regime of intellectual property rights, a gamut of copyright, patent and trademark laws are applicable to the domains of NFTs, gaming and social media. There are ways in which intellectual property undertakings are simplified because of Web3 technologies. Let us examine two of the significant ones:

- **RECORD OF OWNERSHIP:**
  In Primer 1, we discussed the concept of blockchain-based Timestamping. A user can record the creation of their work on an immutable blockchain network - thus effectively creating proof of when the work was created and by who. The registration of copyrighted works can, thus, become an extremely simplified process in the Web3 era without the need for intermediaries. Creators can directly register onto the blockchain where their ownership and copyright is stored securely.

- **PAYMENT THROUGH SMART CONTRACTS:**
  The technologies of blockchain and smart contracts, together, can assist in prompt payment to the original artist. The smart contract, built into the blockchain where the creator's work is stored, can be triggered every time an asset is re-sold such that a commission of the payment goes to the original artist.

An example of the above points is seen in the form of this platform called Dada.nyc. Artists on this platform can put up their sketches, respond to others' sketches and interact with each other. Each artist is given credit for the change they make and the change is also timestamped onto the blockchain. Whenever someone buys this artwork, the smart contract ensures that the corresponding artists who contributed to that artwork are compensated. The above listed points are the positive effects that Web3 technologies

have on intellectual property deadlings. What are the challenges then?

If an object has been patented (or copyrighted) in the real world and is replicated in the metaverse, would that count as an infringement of IP rights? For example, scientist X has invented a new bottle opening device and patented it. Metaverse platform Y has replicated this device in its world without providing any recognition to scientist X. In this case, can we say that metaverse Y is liable because they infringed upon the rights of scientist X? This is one of the primary questions that arises while considering IP in the Web3 paradigm. NFT creator Mason Rothschild created the MetaBirkin which is similar to the product called Birkin produced by Hermes. Hermes, then, alleged that MetaBirkin is a violation of their trademark and a most recent verdict held up 'Hermes' " claim - thus setting a precedent for future issues that arise along these lines.

Additionally, we also see the emergence of tools that create art after 'learning' from the art style of a distinctive artist. Or we see tools that can teach themselves how to answer in pictures after training themselves on images that are copyrighted. This creates a grey area where it is difficult to understand whether compensation to the artists that the machine learnt from is due or not.

As we saw in section 3, ownership of assets in Web3 is set to change. There is more focus on user ownership. And ownership also comes in different forms such as fractional ownership. Therefore, it poses new questions for IP rights. With the shift of technologies from centralised platforms to decentralised non-state technology-driven models, one has to question whether it is the responsibility of the state anymore to protect IP rights.

## B. Content Moderation

In a centralised platform such as Twitter, the responsibility of content moderation lies with the platform. Therefore, Twitter was able to deplatform the former president of the United States of America, Donald Trump. Regardless of the merit of that decision, this incident demonstrates how a centralised platform like Twitter allowed for moderation to occur.

In the era of Web3, decentralised platforms dictate that there is no single entity governing the platform. Therefore, it leads us to the question: who moderates content on the platform? Web3 has an answer to this: Governance Tokens. Governance tokens

give users the power to vote over key decisions related to the platform or content. The decision-making process is decentralised. This sounds quite democratic but this process might not always lead to an ideal solution. The votes related to governance are often not distributed equally - some votes might have more power than others, some users might possess more votes than other users, etc.

Additionally, it is also important to note that the majority decision might be democratic but it might not always be the right decision. If the decision to deplatform an individual depends on the composition of the users, then the decision-making process inadvertently shifts to the kind of composition of users of that platform. For example, it is estimated that 70% of 4chan users are male while only 49.2% of users on Instagram are male. This composition can lead to different governance decisions related to sexism, if the users on these platforms were given governance tokens.

Let us look at the following case of the director of Ethereum Name Service (ENS) foundation, Brantly Millegan to understand the issues that have been listed above. Millegan made some comments against homosexuality, transgenderism and abortion in a tweet back in 2016 which resurfaced in 2022. He said that he was not apologetic about his tweet. This prompted backlash which called for a vote for his removal as the director of the foundation. Prior to this backlash, the voters possessing the governance token on this platform had delegated their votes to Millegan, giving him the majority vote. The users then proceeded to un-delegate their votes to Millegan and changed the favour for Millegan significantly. In the end, however, the vote to remove Millegan as the director failed. 43.39% of voters voted against his removal, 37.51% for his removal and 19% abstained from voting at all.

The above paragraph raises the question of whether democratic voting is the ideal way to dictate the proceeding on a platform. In the case of the ENS director, it might or might not have been the right decision at the end, but there certainly will arise situations where the decision requires more nuance than a majority vote that governance tokens might not be able to fulfil. Content moderation remains to be an unresolved issue in the Web3 era.

## C. Lack of Intermediaries

Currently, for a lot of undertakings, intermediaries are required to not just facilitate an avenue for interaction but to also coordinate the activities that are held in the entertainment industry. For example, if a meeting between a fan and a content creator has been arranged, it is traditionally the intermediaries that coordinate the logistics between the two parties. With the onset of Web3 technologies that put more autonomy into the hands of the creator, the responsibility falls upon the creators and their teams to organise these special benefits unlocked through NFTs and tokens.

# 5 CONCLUSION

The entertainment industry is being set up for a massive uphaul in the upcoming era of Web3. In the above sections, we have observed how different parts of the entertainment industry are adapting to the developing technologies. But further progress in the entertainment industry is dependent upon the regulatory environment in the country. It can change the course of action for many of these examples provided in this primer. If regulation can keep up with and work in tandem with changing technology, greatest value can be extracted and the full potential of these technologies can be realised for the growth of the entertainment industry.

This brief was authored by Prof Srijoni Sen and Gauri Kumar with the support of All India Gaming Federation.
Any errors are the authors' alone.