MetaFi:
DeFi for the Metaverse

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Table of Contents

Introduction

The concept of decentralised finance ("DeFi") has been steadily gaining momentum within the crypto community since 2018. Built on the principles of sovereignty of wealth, permissionless innovation and the promise of financial inclusion, the mission of various DeFi protocols and applications is to construct a digital financial system that is more open, innovative, efficient and less extractive than the one the majority of the world still relies upon today, which in contrast is referred to as CeFi or TradFi.

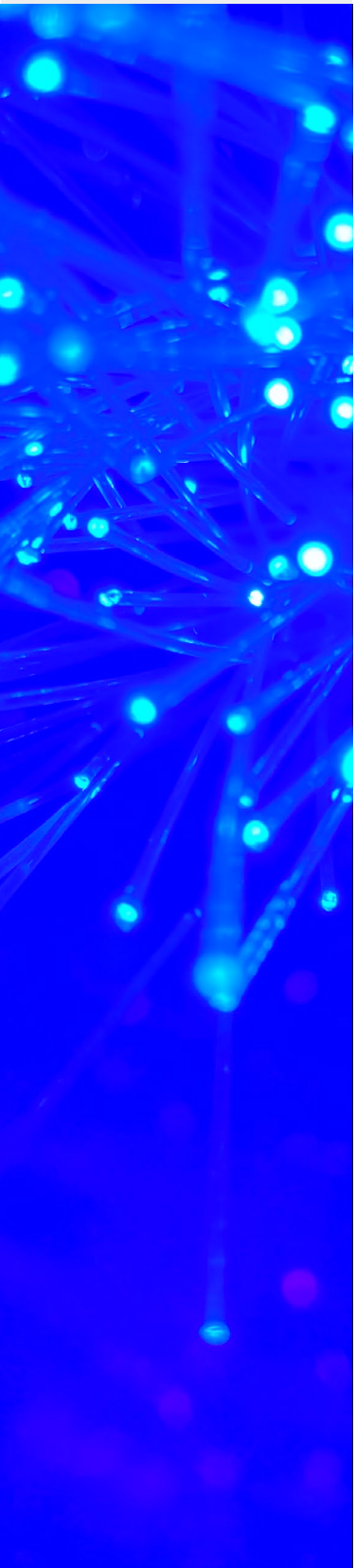
While DeFi has commanded a lot of attention in the crypto space, its adoption is still relatively low, estimated at under 5% of all crypto assets being put to work as collateral in it. In 2021, DeFi achieved $4.6bn in annualized monthly revenues, which is less than 5% of JPMorgan's revenues last year. Furthermore, DeFi is still primarily limited to basic forms of borrowing and lending against stablecoins, Ether, or wrapped Bitcoin. While there is notable work being done to create bridges from centralized finance (CeFi) into DeFi -- for example, to introduce real-world and income-bearing instruments as new forms of collateral -- an increasingly hostile regulatory environment, low capital efficiency, and challenges around managing counterparty risk for institutions makes this bridging seem a long way off.

In this paper, we propose that the majority of growth in DeFi will not be driven by CeFi but instead how it unlocks value in the Metaverse through what we call "MetaFi": the decentralised financial tools of the Metaverse. But what is the Metaverse exactly? What kinds of value exist in it? And how will DeFi be combined with continued innovations in tokens and crypto-assets to enable MetaFi at scale?

In advance of reading this article, and if you are new to the Metaverse and our thinking, we recommend first reading our Open Metaverse OS thesis published earlier this year back in January 2021. You can download and read the original paper and updated primer here.

However, in summary the Metaverse could be understood as an interface layer between the physical and virtual worlds, comprising a combination of innovations in hardware and software, but most importantly, an economic system parallel to the fiat financial system. And in that context it's critical that we think about it in terms of financial inclusion.

Jamie Burke
CEO & Founder



The Metaverse is Crypto

As discussed, the Metaverse is first and foremost an economic system, a meta-economy if you will, that enjoys supremacy over any one digital economy, virtual world or game which should rather be considered a singular instance of the Metaverse, or individual verse. In fact, on a long enough time horizon, as the combined GDP of this meta-economy outgrows those of nation states, so too will it enjoy supremacy over their fiat based economies. We believe, The Open Metaverse at least, is an open and permissionless version of this meta-economy, made possible through what we might in aggregate refer to as Crypto. And in the absence of an alternative meta-economy today you could, and we do, make the argument The Metaverse is Crypto and Crypto is The Metaverse.

In our definition of the Metaverse, one can approach it through two main concepts:

1. **Interface Layer:** The layer where the end user can experience the Metaverse through various hardware and software technologies such as desktop browser, mobile app or extended reality (XR), virtual reality (VR), and augmented reality (AR).

2. **Financial Compute Layer:** The layer where Metaverse computation is executed, enabling a decentralised, transparent and democratic foundation that defines the economic logic based on which end users exchange goods, services and money and upon which developers can build. A good example is Ethereum, which serves as a protocol used by developers to build smart contracts for decentralised applications, as well as a ledger for recording transactions among end users in the Metaverse.

In the context of the first point above, the Interface Layer may take many shapes and forms in these early days, and it is important to stay open-minded as we progress technologically and conceptually. So when we refer to the dawn of the Metaverse, we often refer to current experiences such as gaming and virtual worlds be that 2D browser based or more immersive VR or AR.

The Financial Compute Layer refers to the foundational technologies that power the Metaverse. As we described in our Open Metaverse OS paper, we believe the root (or core) of the Financial Compute Layer will be based on technologies that can be categorised as Web3 (or blockchain technologies). We further argue that any digital realm within the Metaverse has to be rooted in Web3 to provide fundamental property rights, interoperability and permissionless value transfer across each respective domain (or vertical) of the Metaverse. These technologies power a rich set of diverse applications and use cases to be developed on top of Web3.

In this way the Metaverse provides a parallel economic system of decentralised ledgers that is global, transparent, and crypto-native. It provides the basis for new types of digital-first economies, the seeds of which we have observed with NFTs (Non Fungible Tokens) and gaming

The Metaverse is Crypto

economies like Play-to-Earn such as Axie Infinity. The unparalleled speed of innovation that comes from its decentralized and permissionless nature makes it challenging for traditional systems to keep up with. Consequently making it possible, especially in the context of DeFi, for the Metaverse to flourish largely outside of, or at least ahead of, the jurisdiction of national regulators.

Furthermore, as we have observed in the past twelve months of 2021, DeFi has been increasingly criticized and scrutinized by several regulatory bodies across numerous jurisdictions. Although degrees of regulation may bring some positive market effects, poorly applied regulation often stagnates innovation and favours incumbents. In the case of DeFi, several analogs can be easily made between its products and traditional financial assets. Alternatively, we believe that the Metaverse represents an informal economy whose products are often digital markets of goods that may or may not be reflected in traditional markets. And just as one cannot regulate every single aspect of economic activity around the globe, the same will stay true for the Metaverse. Given the exponential growth of economies that can emerge in VR, AR and XR environments, the scope of potential regulation is even more challenging to give oversight to, let alone execute upon over time in the Metaverse.

It is our firm belief that the DeFi components which will finance and develop the growth of the Metaverse will enable unprecedented levels of financial inclusion globally. Further, we believe that the economic activity in the Metaverse will promote generational wealth transfer favouring the upcoming generations, not the legacy world. It brings inclusion to the digital native, to the digital creative, to the digital worker, to the gamer, to the musicians. It will bring inclusion to the individuals who have digital value that is not recognised by the traditional financial system.

Status Quo of the Digital Economy

Today, there are billions of dollars of value currently trapped in proprietary web platforms such as social media (Facebook, Instagram or TikTok) or gaming (Fortnite and Roblox). What we refer to as Web2 has actively and deliberately built "moats" to trap that value and the user for as long as possible in order to extract as much "lifetime value" as possible for the benefit of shareholders. Web2 firms generally operate on the principle of shareholder supremacy over all else, even or especially, at the expense of the user. This value, in the case of social media or free-to-play games, is often primarily monetized through advertising and the profits generally not directly shared with the users themselves. Even with Roblox, where the whole premise is the ability of creators to monetise their user-generated content (UGC), the percentage they receive is only estimated to be 25%[1]. This extends to the music streaming model and programs on YouTube.
In aggregate, it is estimated that the digital economy is currently worth US $11.5 trillion globally, equivalent to 15.5% of global GDP[2]. It has grown 2.5x faster than global GDP over the past 15 years, almost doubling in size (since 2000) with an increasing percentage of the population depending on the internet for their livelihood.

If we zoom into a subset of the digital economy - the digital creator economy, it is currently only a fraction of the mainstream digital economy, but its core areas are growing. This includes fields like publishing, gaming (skin creation), digital art, streaming, music, film, and more. On the supply side, there are currently up to 50 million[3] content creators in the space, who consist of mostly amateurs (46.7 million)[4] and around 2 million professionals. Professional participants in the digital creator economy can easily earn up to $100,000 per month. However, the majority earn much less, their income is irregular, and receipt of funds as they work their way through the system can take several months after delivery. We argue that much of the digital creator economy today would not be considered part of the Metaverse, because value is not freely tradable across platforms and is primarily locked into the value of platform equity alone.

We can further breakdown the limitations of the Web2 digital platforms as follows:

- **Limited Inclusion:** If we take the digital creator economy as an example, the majority of its creators are financially excluded in a traditional sense because the value they create is seen as intangible, not under their control, and the income derived from it as irregular. In short, the existing financial system cannot assess the associated risk of lending to a person with this category of income and wealth compared to an individual under the regular employment of a centralised company and paid in fiat.

1 https://www.youtube.com/watch?v=_gXlauRB1EQ

2 https://www.oxfordeconomics.com/recent-releases/digital-spillover

3 https://martechseries.com/social/influencer-marketing/the-creator-economy-survey-by-the-influencer-marketing-factory

4 https://influencermarketinghub.com/creator-economy-stats/

Status Quo of the Digital Economy

- **Dynamic Terms & Conditions:** Participants in the traditional digital creator economy cannot trust in the credible neutrality of the highly centralised services, risking demonetization and de-platforming of both content creators. For example, when Only Fans abruptly banned adult content creators) and platforms like Facebook and Twitter regularly deplatform developers and their APIs. In effect, the rules of participation in these platforms are not clear, consistently applied, or auditable, and can be changed at any time (unlike the code of a smart contract).

- **Siloed by Design:** As previously discussed, platforms make it hard to impossible to transfer value off platform, either directly or through cashing out, and exit their closed digital economy. This leads to the establishment of monopolies which means that over time users have no alternatives anyway even if they could exit.

Web 3, NFTs and the Metaverse

In contrast, in the Web3 world of crypto-currencies, DeFi and NFTs, the whole paradigm is oriented around the user and their sovereignty: their identity, data and wealth. In Web3, even data itself can be a form of digital wealth and income. This means that while there are still platforms that help with the creation, discovery or curation process, the user is in full control of the output and can freely transfer value between platforms to resell, borrow and lend against in a completely permissionless way. In short, transferability is a fundamental "property right."

Unsurprisingly, we have seen in the early successes of Web3 that when moats are removed and transferability made possible, people spend more time and money on platforms they like, such as the blockchain game Axie Infinity[5]. This is something we laid out in our previous paper. Long-term, the Metaverse and its platforms (including much of Web2) will adopt Web3 technology and principles, not necessarily because it's philosophically the right thing to do, but because it's good business.

Axie Infinity user retention via @Jihoz_Axie

And TikTok's recent launch of NFTs has shown this prediction to be true. But the even better news is this can potentially happen without the explicit permission or adoption of Web3 by closed platforms. Instead, NFT derivatives can in principle be made to be represented and freely traded in the permissionless markets of Web3, parallel to the closed platforms, trustlessly through innovations in decentralised commerce infrastructure such as Boson Protocol.

5 https://outlierventures.io/research/understanding-p2e-2-0-axie-infinity-deep-dive/

Defining MetaFi

For us MetaFi is an all-encompassing term for the protocols, products and/or services enabling the complex financial interplay between non-fungible and fungible tokens (and their derivatives). For example today, with MetaFi an individual could use a fraction of an NFT as collateral in a DeFi lending platform.

To understand MetaFi, we must first highlight the two core principles of DeFi that make it possible. It is 1) unstoppable and 2) composable, acting as a form of "money lego" for developers, which in aggregate form a highly innovative parallel financial system. Developers all around the world can openly participate and compete to provide the highest yields, whilst ruthlessly removing inefficiencies. It is also important to note that regulators can only limit how the fiat-based systems they oversee interact with DeFi, but not necessarily what happens in DeFi itself -- that is, as long as projects and their teams themselves are sufficiently decentralised.

MetaFi brings together these DeFi principles to the wider Metaverse through a mix of non-fungible and fungible tokens combined with novel forms of community governance such as Decentralised Autonomous Organisations (DAOs). The combination of these different crypto primitives enables a fully-fledged parallel economy bringing hundreds of millions, and eventually billions of users, into the crypto ecosystem over the next decade.

We believe this process will be accelerated by 4 key trends in MetaFi:

1. **Development of financial tooling:** Previously, the DeFi stack has been the preserve of a small subset of the crypto developer community due to its technical complexity. Increasingly, however, through NFT platforms, creators and communities will be able to much more easily set the economic terms of creative exchange with users from perpetual royalties to issuing their own social tokens. Fans and communities can also directly share in the financial success of their favorite products and cultural projects.

2. **Financialization of everything**: Many talk about crypto's speculative nature dismissively, without understanding that this is a feature, not a bug. By leveraging MetaFi technologies, value and its flow can be captured in digital assets for everything and anything allowing open free markets to form for a long-tail of value where there is real-time price discovery unlocking latent value as of yet unrealized across the internet.

3. **Improvement of the DAO services stack:** A maturing DAO stack will allow for the collective governance of purely on-chain digital and financial service provision, without the need for corporations and the services of centralised intermediaries, such as banks. With the key characteristic of DAO members being able to fluidly join and exit at their discretion and on clearly understood terms.
4. **Mutualisation of risk:** History has shown that incumbent financial institutions regularly fail to assess risk in new, emergent markets; be that basic banking services or insurance. This has led to mutualisation of risk by communities in everything from farming communities to shipping, traditionally through cooperatives. DeFi is already bringing the tools for community based insurance provision to users, especially when combined with the DAO services stack.

5. **Gamification of finance:** Gen Z'ers have been showing more interest[6] in becoming more financially literate than previous generations. As a result, many neobanks offer new interesting ways to arrange personal finances and education platforms provide easy access to finance courses. This makes young people much more willing and able to engage with financial products than their parents and grandparents. On top of all this, we see that the line between memes and financial instruments gets increasingly blurred, such as in the cryptocurrency Dogecoin or various "meme stocks" available via Robinhood, where people are much more comfortable investing and trading in internet culture.

6 https://www.paymentsjournal.com/gen-z-money-moves-why-financial-literacy-is-important-for-digital-natives/

A Deeper Dive into NFTs as Collateral

To really comprehend the possibilities of digital representations as actual financial assets you can borrow and lend against, it's important to understand the promise of NFTs as a form of collateral in DeFi. As we highlighted back in late 2020[7], NFTs, which are typically less liquid than fungible tokens, can increasingly be put to work in DeFi protocols. Remembering this was before the NFT art explosion in early 2021, the emergence of blue chip NFTs like Crypto Punks and Bored Apes, or the breakaway success of the blockchain gaming category Play-to-Earn[8] (led by Axie Infinity)[9]. This prediction of the combination of DeFi and NFTs is now starting to play out in everyday MetaFi.

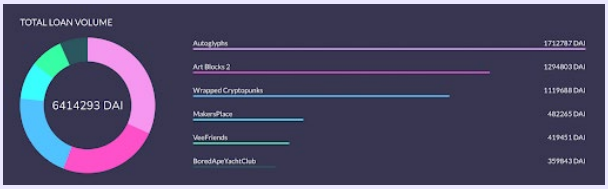
7 https://outlierventures.io/research/defi-nfts-post/

8 https://outlierventures.io/research/p2e-2-0-a-new-economic-model-for-gaming-based-on-crypto-tokens/

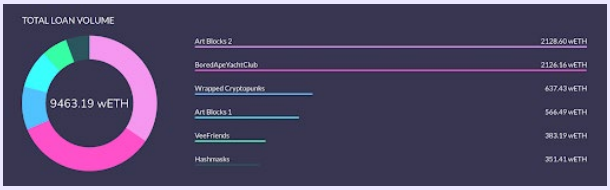
9 https://outlierventures.io/research/understanding-p2e-2-0-axie-infinity-deep-dive/

OpenSea daily transaction volume and revenue for the last year via TokenTerminal

Axie Infinity fully diluted market cap and revenue for the last year via TokenTerminal



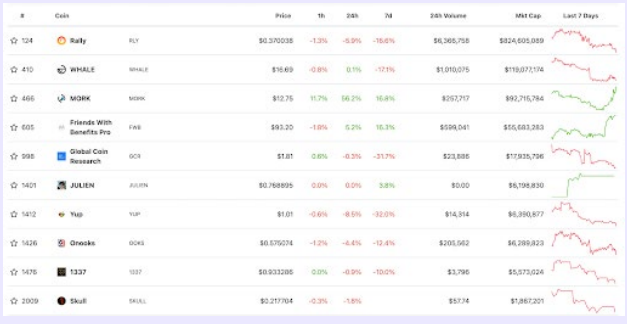
Total wETH loan volume on NFTfi on 13/12/2021



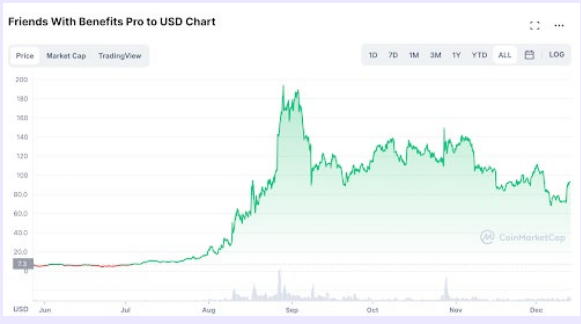
Total DAI loan volume on NFTfi on 13/12/2021

Furthermore, what is increasingly interesting to see is the interplay of fungible and non-fungible social tokens being generated for and by the creator class to dramatically remove the need for intermediaries that allow people to take a stake in a creator or community franchise and their future value creation. Social tokens are now collectively valued at ca. $1.1bn[10] and growing.

10 https://www.coingecko.com/en/categories/social-money



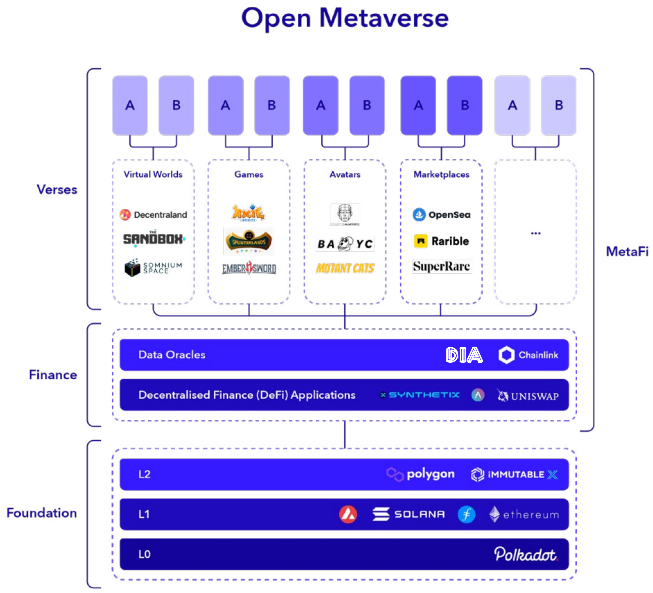
Top 10 social tokens collectively valued at ca. $1.1bn via CoinGecko on 13/12/2021



Friends with Benefits (FWB) token all time price via Coinmarketcap on 13/12/2021

A Framework for MetaFi

It may be most helpful to first visualise the main components of the Metaverse in order to understand MetaFi within it. We do this by using our previous Open Metaverse OS Framework, which looks at the layers within the Web 3 stack as applied to the Metaverse. Metaverse (figure below). The diagram consists mainly of three building blocks: 1) foundations as layer zero, one and two; 2) DeFi; and 3) Verses.



1) Foundations

This building block consists of core frameworks (or protocols) labelled as layer zero, one and two such as Polkadot, Ethereum and Polygon. These core frameworks allow applications to be built on-top of them due to shared application logic and security, enabling horizontal value transfer due to their uniform communication layers (allowed through execution and consensus respectively, but also including bridges and similar cross-chain technologies). The horizontal axis labeled Open Metaverse, and its relevant components, are necessary to be included in applications aimed at providing an experience within the Metaverse. If an application does not integrate with this core layer, the application will be isolated where economic and creative value will stagnate and fade away, rendering the application unable to be financially inclusive. We can see similar cases in the traditional world where services that do not integrate to the wider ecosystem fade away due to not staying competitive for the end user.

2) DeFi

This building block consists of small financial applications that are available on core protocols as described above. These applications can be referred to as “money legos”, are considered as unstoppable applications, and enable complex financial dynamics through smart contracts.

3) Verses

This building block consists of a set of domains or parallel verses that makes up the totality of the metaverse. Verticals such as virtual worlds must be connected to foundational layers based on compatibility and free-value-transfer.

Decentralised finance in the Metaverse (MetaFi) occurs in between the intersection of the vertical and horizontal components. This is where domain specific assets (mainly NFTs) interact with fungible components (foundations and finance). The set of verticals within the Metaverse are diverse in nature and numerous and the definition of each vertical may be highly subjective such that justification of a vertical definition is required. But essentially, MetaFi is a phenomenon taking place at the intersection of fungibility and non-fungibility.

Foundation Enabling Horizontal Growth

As we described above, the building blocks of foundations consist of core frameworks (or protocols) labelled as layer zero, one and two (such as Polkadot, Ethereum and Polygon respectively). Here, the protocols usually facilitate modularity, meaning each respective component (L0, L1 & L2) usually serves each other to some extent.

A direct yet familiar use case can be Ethereum, an L1 framework providing smart contract[11] functionalities; meaning the framework provides custom logic that can be used to create a diverse set of computer programs that run in a decentralised manner. Similar to the way Bitcoin is decentralised, but in addition to this decentralised aspect, Ethereum provides what we can refer to as smart money, or money that is programmable through smart contracts.

To conceptualize simply, we will only focus on L1. Since Ethereum provides a uniform layer where a wide range of applications can be developed through smart contracts and smart money, it has proven to be a framework delivering revolutionary services to the world of finance (as DeFi has proven). This concept of uniformity, meaning any smart contract on the Ethereum network can interact with each other if programmed to do so, allows an incredible catalyst for interoperability between different services and games built on top of Ethereum.

The horizontal axis of our diagram will remain a horizontal growth factor for the wide metaverse. Meaning, the layers zero, one and two will continue to stay foundational to all the verticals (or parallel verses) that will make up the Metaverse. Applications that can be categorised as DeFi mainly are centered around this horizontal layer, underpinning complex financial applications enabling individuals to lend, borrow and trade in the crypto ecosystem.

11 A smart contract can be described as a small computer program executing simple instructions. A smart contract consists of functions that can be activated by calling these functions. A smart contract on ethereum can facilitate transactions for tokens on the network. This can be the native Eth token or other types of tokens defined by a smart contract and the corresponding standard such as ERC-20.

MetaFi Clusters of Activity

As we consider the visual above, the number of verticals and its respective definitions will be subject to continuous change as the Metaverse evolves. However, we make an attempt to define some of its emergent core clusters of activity as the ones below. It is important to bear in mind that these clusters are enabled by DeFi applications, data oracles and various foundational layers, as per the Open Metaverse diagram above.

A

Virtual worlds: Virtual worlds are digital spaces for the purpose of social, commerce or game play which may or may not mimic the real world and its physics. . When they do, they often comprise an element of scarce land represented as NFTs that can be purchased, traded and built on freely. The most notable examples include The Sandbox or Decentraland. The NFT-component, virtual land, is closely linked to the in-game currencies and/or governance tokens of the virtual worlds, meaning that users can use the tokens to purchase assets in virtual worlds and to vote on improvement proposals. Adoption of virtual worlds has moved forward significantly since the beginning of 2021, when only a dozen people interacted with them on a daily basis. In the last 30 days, 6.5k unique addresses have interacted with the smart contracts of Somnium Space, Decentraland, The Sandbox and Crypto Voxels, which is a 4x increase since the beginning of November. The Sandbox constitutes the largest share, both in terms of monthly active users (4.1k), and the total value of land sold to date (112k ETH[12] or $450m).

B

Games: We can define games as digital activities primarily for amusement. What sets games in the Metaverse apart is that they often comprise a play-to-earn element, i.e. that users or gamers get remunerated in tokens for their contribution to the game. This gives rise to entire in-game economies, where capital gets connected to labour to generate value. Axie Infinity is probably the most famous Metaverse game and one of the category leaders, both in terms of users (approaching 2 million monthly active users) and protocol revenues ($2.5 bn annualised). However, there have been a whole range of play-to-earn 2.0 games with similarly elaborate economics such as racing games like Zed Run or Battle Racers, collectible card games like Splinterlands or even open-world role-play games like Embersword. Blockchain gaming has also seen significant adoption since the beginning of the year. Almost half of blockchain active wallets are now connecting to games, with the top 10 blockchain games collectively boasting 4m monthly active users.

12 https://opensea.io/collection/sandbox

C

Avatars: Avatars are specifically designed to create unique digital identities for users, including interoperable 3D avatars usable in a variety of Metaverse spaces, and often made en-masse as generative PFPs (Profile Picture Projects). PFPs, which can be thought of as prestigious social clubs, are enhancing NFTs at the basis of their projects with fungible tokens, often including functions like governance rights or other benefits. Popular projects like CyberKongz and SupDucks distribute native tokens to (certain rarity classes of) their NFTs. In the case of CyberKongz, by holding a genesis kong, one earns 10 banana tokens every 24 hours. These tokens can then either be sold on Sushiswap or spent in the "banana store" on upgrades, name changes, wearables, etc., as well as on breeding (600 bananas needed to be burnt to breed a new kong).

D

Wearables: Wearables are digital objects that can be manifested / shown off in the Metaverse. They are currently most relevant in games but will spill over to other Metaverse categories in the near future. Designer brands are increasingly using NFTs to tap into the 2.7bn gamers around the world. Gamers can now own unique skins designed by top fashion brands and showcase their tastes to millions of people online. For example, Balenciaga partnered with Fortnite and designed 4 virtual outfits[13] and Burberry collaborated[14] with Mythical Games to launch its fashion pieces represented as NFTs.

E

Marketplaces: Marketplaces are digital places that match supply and demand, allow for greater discoverability of NFTs, facilitating better price discovery. Marketplaces such as OpenSea, Superrare, and Rarible allow users to freely trade and issue NFTs directly. From there, these NFTs can then be used as financial assets. Fractionalization allows high-value NFTs a way to liquidity by fractionalising them into fungible tokens with proportional ownership. Fractionalisation is especially popular in combination with bundling, effectively resulting in an index fund solution for the given category of NFT -- for example, platform NFTX and Beeple's B20 index. The NFT boom has caused marketplaces volume to skyrocket. OpenSea's January 2021 30 day trading volume was only $1m, while in November 2021 it surpassed $2bn, a 2,000x increase.

13 https://www-voguebusiness-com.cdn.ampproject.org/c/s/www.voguebusiness.com/technology/balenciaga-launches-on-fortnite-what-it-means-for-luxury/amp

14 https://www.youtube.com/watch?v=jK0YS0di-c4

F

Yield-Bearing NFTs: NFTs can produce yields in 2 ways: indirectly or directly. Producing yield indirectly includes using NFTs as collateral for taking out loans and then reinvesting the loaned funds at a higher rate. NFTfi allows using NFTs as collateral for loans this way. Producing yield directly can be achieved by combining an NFT with e.g. yield bearing DeFi LP tokens. The platform Charged Particles aims to provide a framework to add these DeFi elements to NFTs. Also, a persistent trend over the past months has been for NFT-first projects to add a native token, adding another yield-generating element to their NFTs. This effectively creates social token economies, such as Loot, where its Adventure Gold currency was launched shortly after the NFTs. EtherCards is launching its Dust token, allocated to every existing card, depending on its rarity. Dust can be used to participate in raffles to win blue-chip NFTs. There is also a significant overlap with the Avatars category, where CyberKongz and SupDucks can also be considered Yield-Bearing NFTs.

G

Access Tokens:These can be both fungible and non-fungible tokens that give its holders access to various forms of value, which can be in the form of access to a community, specific people or tokens minted in the future. A good example is The Bored Ape Yacht Club, a collection of 10,000 ape NFTs, where owning one not only gives holders access to a community Discord, but allows them to speculate on future value delivery by The Bored Ape Yacht Club franchise.

It is important to note that projects in the above mentioned categories do not function in isolation, but in many instances overlap. For example, we are seeing the successful mechanisms that allow play-to-earn 2.0[15] like Axie Infinity to have yield-bearing NFTs being transferred to other NFT use-cases. Similarly, we have seen established crypto protocols (centred around fungible tokens) launch NFTs as additional ways of interaction, such as Gitcoin selling NFTs for funding digital public goods. We expect to see more exotic combinations of the above categories in the near future, as well as creation of entirely new categories of MetaFi.

15 https://outlierventures.io/research/p2e-2-0-a-new-economic-model-for-gaming-based-on-crypto-tokens/

Limitations Today

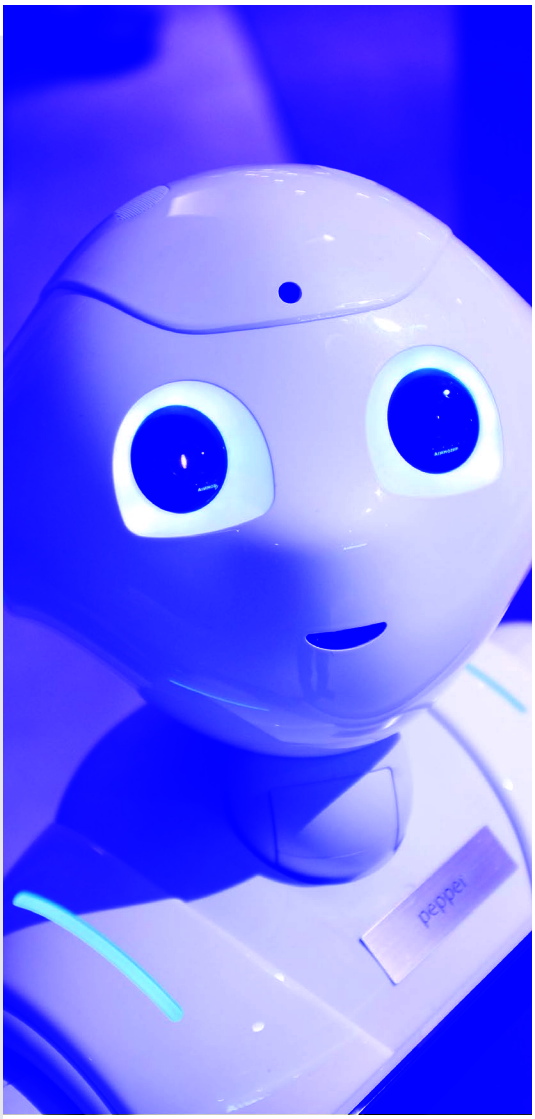
For MetaFi to start realizing its true potential, much still needs to be developed. More specifically, there's a couple of limitations in the current state of MetaFi that need to be overcome in order to bring about a notable wave of adoption:

1. **NFT appraisals**: In order to be able to buy, sell or borrow against an NFT, owners need to know what their NFT is worth. NFTfi solves this by enabling users to list their NFTs on NFTfi website as collateral and lenders can offer borrowers loans based on how valuable they think their NFTs are. Appraisals are essentially done by lenders and not by uninterested 3rd parties.
2. **Legal and governance issues around fractionalization**: If you divide an NFT into 100 pieces and distribute them to different people, especially if that NFT carries rights such as voting or yield, it's not always clear who can do what and when and how those rights are managed.
3. **Standards across blockchains**: The Metaverse is now being built beyond solely Ethereum on different layer one or layer zero blockchains, and these blockchains are still not 100% interoperable, which means siloing of value is to a certain extent inevitable in the near term.

To fully unlock the value of DeFi for the Metaverse, NFTs need to be easily insertable or pluggable into DeFi protocols, e.g. NFTs need to be traded, borrowed, lent, borrowed against. Although today's DeFi currently only really works with fungible tokens, we expect new ways to bridge NFTs with DeFi:

1. **Fractionalization of NFTs**: This means dividing non-fungible tokens into many fungible tokens. One can think of these fractions as a stake in the ownership of an NFT. For example, meme creators can use asset creation platforms to make memes, fractionalize them into tokens with a high level of fungibility, and trade them using DeFi DEXes like Unsiwap. Notable projects that are fractionalizing NFTs include the likes of Fractional or DAOfi.
2. **NFT-isation of DeFi**: This means upgrading DeFi protocols so that they can accept NFTs as a form of collateral. For example, builders can create assets in virtual worlds and use them as collateral to borrow against on platforms like Centrifuge or Pragmafy.
3. **NFTs as derivatives**: Creating a range of liquid digital assets whose value would depend on the value of off-chain assets, in-game items, social capital, etc. represented as NFTs and perhaps linked to data oracles to determine state. For example, digital artists can create art, create an NFT derivative and use it as collateral to mint synthetic assets on Synthetix, e.g. stablecoins, synthetic gold or stocks.

MetaFi 2022



In summary, MetaFi, or Metaverse Finance, is an all-encompassing term for protocols, products and/or services enabling the complex financial interplay between non-fungible and fungible tokens (and their derivatives). It comprises fundamental building blocks of the blockchain space, such as foundations as layer zero, one and two, the DeFi stack and various verses. MetaFi inherits the 2 core characteristics of DeFi protocols; it is unstoppable and composable. Its development is driven by a couple of key trends, such as mutualisation of risk, gamification of finance, growth in availability of financial tooling and DAO services stack.

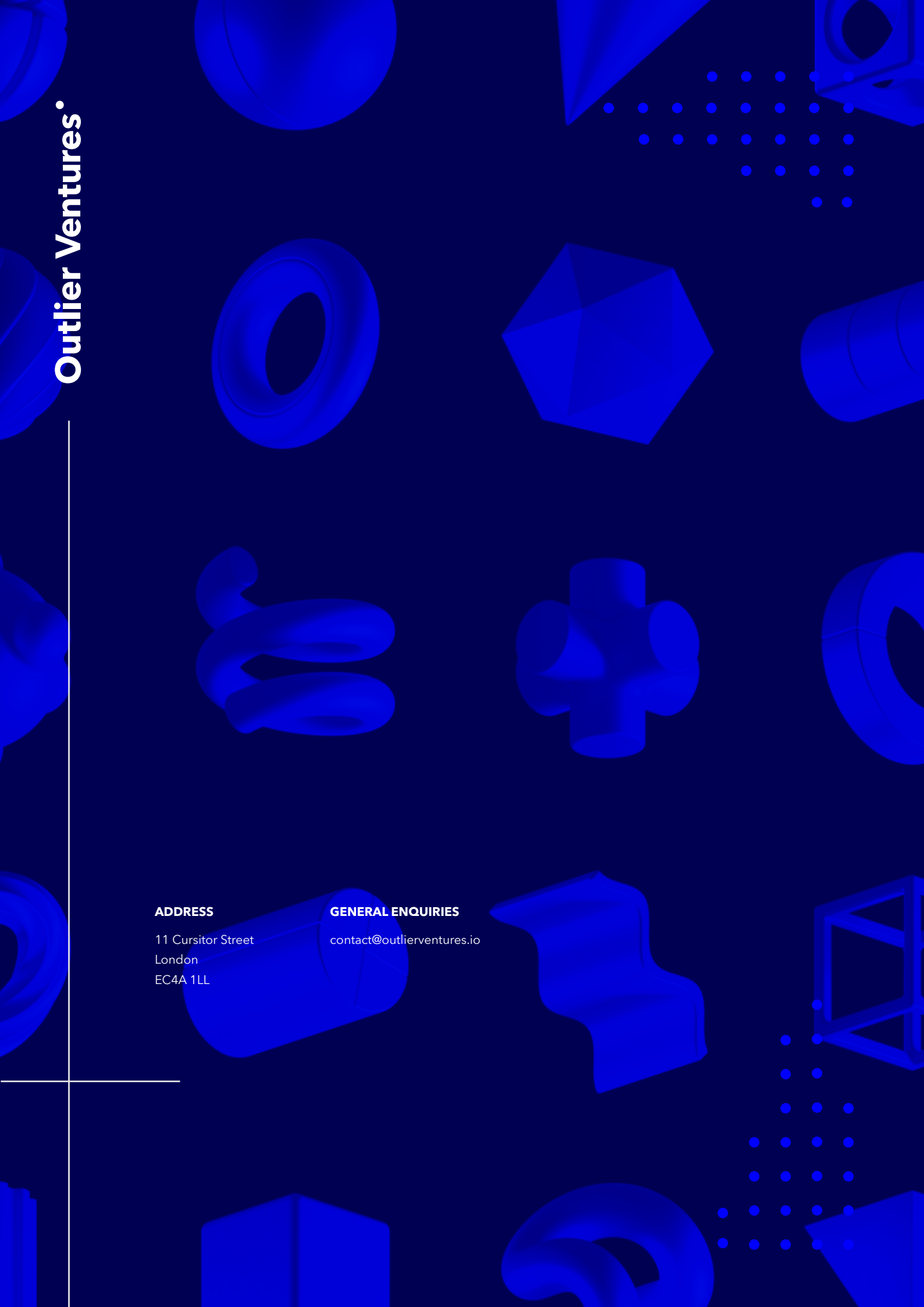
Hopefully we have now made clear MetaFi in its current form is in a nascent state. As mind-boggling as some of its features are, we are now only beginning to scratch the surface of the possibilities it will unlock in the medium to long term future. However, based on what we see in the market and going through our accelerator, we expect to see the following developments in the short to mid-term:

1. Combinations of different MetaFi categories and the creation of entirely new ones, e.g. user-generated games in virtual worlds with their own economies, or yield bearing non-fungible assets, such as wearables or avatars.

2. Improvement in UX / UI of the financial MetaFi projects, probably incorporating elements of VR. In order for MetaFi to truly take off, it needs to be understood and more seamlessly experienced by ordinary people.

3. Further innovation in DeFi 2.0 transferring to MetaFi, similar to the kind of innovation we have seen with Olympus DAO, Alchemix. We need better solutions to fractionalization of NFTs, especially catering to the legal and governance issues, as well as to NFTisation of DeFi.

4. Improvement in the foundation technologies like layer ones, which will lower transaction fees, increase throughput, enable scaling and overall make applications running on blockchain protocols more accessible.



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