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EDITED BY JOHN ARKONTAKY

NAVIGATING THE METAVERSE

A GUIDE TO
LIMITLESS POSSIBILITIES
IN A WEB 3.0 WORLD

FOREWORD BY YAT SIU
CHAIRMAN OF THE BOARD, ANIMOCA BRANDS
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Cathy Hackl

I dedicate this book to my three children, who sustain me and are my best teachers. My heart is filled with gratitude for you. And to those who have lost their inner strength - may you find it and find yourself again. Once you do you can create magic (Bibbidi-Bobbidi-Boo).

Dirk Lueth

I dedicate this book to the Upland team who is helping to turn the vision of the metaverse into reality. And to my co-founders, Idan Zuckerman and Mani Honigstein, for being on this journey with me. And to my wife, Karin, and my two sons, who always supported me in this project, knowing that I would spend less time with them.

Tommaso Di Bartolo

Dedicated to you, the reader. Have peace with your past, and focus on your future. Make things, break things! And affectionately, to my wife, Gata Zenaidy. To David and Samuel, the world needs you, sons! To my parents, my brother, and my sister. Sending ♥ from the metaverse.

Foreword

Yat Siu, Chairman of the Board, Animoca Brands

On October 28, 2021, Facebook announced that it was changing its name to Meta and becoming a metaverse company. The world reacted with a mixture of bewilderment and excitement, enthralled by the idea of a virtual existence in this glossy visualization of the metaverse.

But to a small cohort of people, including the authors of this book, the concept popularized by Facebook/Meta was already, in many ways, a reality.

There are people who have been breathing the air of the metaverse for years – since the advent of true digital property rights. I am referring to the asset ownership enabled by crypto tokens and particularly NFTs, ownership that is provided to users in game worlds like Axie Infinity, Decentraland, Upland, and The Sandbox.

Even today, over four years since CryptoKitties first brought NFTs to the public's attention, most people still don't really grasp the implications of NFTs. Most people don't understand that this technology can break the pattern of operator dominance that has been in place for the greater part of the information age. Most people simply have no awareness of the seismic change that is occurring while you read these words.

It's a change based on openness, ownership, and user governance, and it's a change that is anathema to the closed, proprietary systems that have ruled our digital lives until now. The *open* metaverse is the inevitable future.

This book is one of the first published works to define the open metaverse: a series of worlds where users enjoy ownership and agency over their digital assets, a vast online ecosystem where property rights serve as the foundation for a potentially infinite number of creations, by users and for users.

The authors, all experts on this subject, will guide you through various opportunities in the metaverse – the kind of opportunities that are as important as the rise of the World Wide Web in the late 1990s, or the emergence of the smartphone as the universal personal computing device. If you missed out on *those* revolutions, this book is your chance to participate in their present-day equivalent.

Even more importantly, in these pages are powerful and clear arguments against creating, working, and living in a *closed* metaverse: the proprietary, centralized environments that Facebook and many other closed platforms are advocating in order to retain market hegemony.

Finally, this book will explain how blockchain, NFTs, decentralized autonomous organizations (DAOs), and crypto in general are pieces of the puzzle that, when assembled, will reveal one of the most meaningful paradigm shifts in digital history: the creation of the true and open metaverse.

Introduction

It started with an ordinary game of Monopoly. Three friends shook dice and exchanged pink and blue bills over an old, chewed board as the hours melted into the Santa Clara night.

The game unfolded the same as it had since they were kids: The opening land-grab, the alliances, hating (and then not minding) sitting in jail, the ante suddenly spiking when a red hotel broke ground on Boardwalk. At some point, one friend asked the group if they ever heard of an “NFT,” or non-fungible token. One friend shrugged his shoulders. The other said to stop stalling and pay the rent. After all, it was 2018. CryptoPunk NFTs weren't selling for millions of dollars and Snoop Dogg wouldn't be outed as NFT influencer Cozomo de' Medici for another three years. NFTs just weren't a big deal yet.

As the game went on, they started talking about NFTs more. They didn't know much about it, but the idea of true ownership of digital assets, backed by blockchain, had interesting prospects. Right there, bringing together Monopoly-style property-collecting, blockchain gaming, and NFTs, the Upland metaverse was born.

This might not seem crazy now, but in 2018 the metaverse wasn't nearly as trendy as it is today. Back then launching a blockchain game sounded a bit crazy. Think about it: Three Silicon Valley entrepreneurs believed they could upend multi-billion-dollar industries like video games and social media with a mobile game concept based on a century-old property-management board game. As it turned out, they were not only spot on, but years ahead of most of the world. Just a few years ago, NFTs and the metaverse

weren't on the radar. CryptoKitties, the game many say gave blockchain gaming credibility, was first released in 2017. OpenSea, one of the most popular NFT marketplaces, opened shop in 2017 too. Axie Infinity, another blockchain game that caught on like wildfire, launched in 2018. Fast forward to today, and you see everyone from Mark Zuckerberg to teenagers to Snoop Dogg talking about NFTs and the metaverse.

So what convinced the Upland founders that the metaverse would be so big? Need a hint? We mentioned it earlier. One word: *ownership*.

You can find Monopoly in hundreds of variations, countless languages, and on virtually any device. Why is it so widely welcomed into our homes and even cultures around the world? Is it that perfect blend of chance and skill? Maybe for some folks with a knack for winning. But we think it's the powerful concept of ownership - of accumulating wealth - that scratches an itch deep inside of all of us. Who doesn't want more control - dare we say a monopoly - in their professional, personal, and financial lives?

Monopoly isn't real, of course. But what would happen if people could earn assets in a game that have real-world value? The concept of ownership - giving players *real* skin in the game - changes everything. That's the essence of an NFT. In a digital world full of stock art, torrent media, and even artificial intelligence (AI) that writes content, an NFT ensures the owner has sole rights to the digital asset. Now, assets can be more than ones and zeroes - they are unique and verifiable on the blockchain.

This concept changed everything. People are willing to pay real money for NFTs. Then blockchain gaming gave players more than intrinsic value in the traditional "play-to-win" model: "Play-to-earn" gaming, where players are rewarded

with assets that have extrinsic, monetary value, became a reality.

Which is better, a game where you're trading time for entertainment (and maybe some glory), or a game where you have an experience *and* get something with real-world value? To be fair, a good time is a valid reward, and it would be shallow to say that people always want monetary incentives. But there are plenty of examples supporting the idea that people are drawn to reward-based systems: earning points with a credit card provider, gamified incentives at work, competitive eSports – the list goes on and on because people like the feeling of accumulating something tangible. We all seek the thrill of winning.

Considering all of this, the dawn of a new era – let's call it the metaverse economy – was inevitable. We only needed technology to evolve to better reflect our behaviors. And now it has. The metaverse represents the newest environment where people can generate extrinsic value from entertainment. But what does that have to do with businesses?

Why Should Businesses Care About the Metaverse Economy?

In this book, we hope not only to help you find your eureka moment like the Upland founders did, but also to give you the tools you need to do something with it. Before we get to that, we feel it's important to help businesses find their “why”. We spend a whole chapter on building a business case, but for now the shortest, simplest answer we have is something we've already mentioned.

It's about *ownership*.

Typically when we see innovation (not incremental *optimization* of technology, but transformative, watershed innovation), we see two things driving it: a cultural behavior shift, and the technology surrounding it. This was as true when humans built the first civilizations as when we send suspender-wearing plumbers down green pipes to save a princess from a rude dragon.

Following this, the metaverse economy is the outcome of an inflection point in consumer behavior. Digital-first consumers who spend their free time on their phones, computers, and gaming consoles build an identity – even online personas – that matters to them. But when they log off to rejoin the offline world, that sense of identity is largely left behind. In this way, ownership is limited, finite.

Writer and philosopher Will Durant once said, “We are what we repeatedly do.” However, for many people who invest time, energy, and money into their “digital lives,” the connection is largely lost when at work, school, or walking down the street. The metaverse has the potential to change all of this by interweaving online and offline realities into something new. This is achieved in a few ways:

- ◆ Metaverse apps give people the communities and ecosystems to further develop their digital identities.
- ◆ Web 3.0 technologies like augmented reality (AR) and virtual reality (VR) will create more immersive experiences in virtual *and* physical spaces.
- ◆ Assets backed by blockchains, such as non-fungible tokens (NFTs), give people a way to earn and own digital items with real fiat value.

True ownership of assets, technologies that bring digital worlds into the real world, and more immersive digital worlds give consumers the freedom to actualize and own

their digital identities everywhere. This has the potential to change the way we live, work, learn, shop, and socialize. This is where businesses come into play.

Through the metaverse, businesses get to connect their digital platforms with the real world in new ways. When they do this, there are new avenues for content, marketing, products, services, and revenue streams that are as close to multidimensional as anything we've ever seen. Thanks to the immutable blockchain, there are transparent records and control for intellectual property (IP). Even better, businesses have a chance to own the buying journey again. Thanks to eCommerce and an abundance of online content, brands are lucky to get a word in on purchasing decisions these days. Inside the metaverse, though, companies can create assets and experiences that attract eager consumers. New buying journeys in the metaverse economy empower businesses to become active participants in the purchasing process once again. On top of that, every interaction generates useful data about consumer preferences in this new space.

Businesses that get involved in the creation of the metaverse early will have a distinctive early-adopter advantage, allowing them to have more ownership of the metaverse's total available market and culture as it becomes mainstream. You don't need to look far to see how IPs such as Fortnite and Roblox have already transformed games into social entertainment hubs that are incredibly profitable for business partners. These platforms only scratch the surface of metaverse applications, but they show us how younger audiences crave community and novel content - even from brands. Layering an open metaverse economy into these experiences gives players and companies limitless possibilities to grow into the metaverse and build a new culture together that covers gaming, work, education, socialization, and commerce.

Who Should Read This Book

We're writing this book for those with questions, those with some metaverse and blockchain knowledge, and those who are just curious paired with some skepticism. Those living and breathing the metaverse may find confirmation of their existing foundational knowledge offered early in the book. But the frameworks, expert interviews, and author insights in the meat of the book could help everyone solidify a project or strategy.

Whoever you are and whatever your goals, thank you for reading our book! There's an abundance of information on the web, and we hope that this material is structured in a way that cuts through the confusion and gets you to making decisions.

If you're reading this book, you likely gravitate toward innovation - you're curious about what's coming and how you or your company can position yourself advantageously. The question is: Will you be a leader in this new customer journey found in the metaverse? Will your company be a part of a cultural shift? In this book, we've compiled information and perspectives from thought leaders and research not only to help you make a decision about the metaverse economy, but also to build new connections and revenue streams with a new generation of consumers.

We believe there's room in the metaverse and its economy for everyone. In fact, the metaverse needs companies to populate this frontier with things to do. For example, football clubs (or soccer teams, depending on your hemisphere) are jumping on fan token experiences. Music artists such as Ariana Grande host (very successful) concerts inside Fortnite and other digital "venues." Clinique launched its first NFT in the beauty space. Upland partnered with Hyperloop TT to put a mass transportation

system into the game. These are huge, global brands, but there are new use cases popping up all the time for big and small companies alike. In fact, just like social media and the web, the metaverse could be the right opportunity for smaller players to leapfrog their industry juggernauts.

As far as being a fit for this book based on your job title, interests, or background, we think this book can help just about anybody understand the metaverse, its origins, and how the metaverse economy works. From there, we can see anybody from independent artists to C-suite executives apply our knowledge to build a strategy and product portfolio in the metaverse.

How We Structured the Book

We want to guide you to your aha moment – just like the three entrepreneurs sitting over the Monopoly board. We want you to see the possibilities of the metaverse economy. Then we'll go a step further to help other stakeholders in your business have that same eureka moment. And then we'll bring it all home by giving you tools to build a strategy and your first project.

It's difficult to generate ideas and find inspiration when you're tripping over details. Our focus is to make the metaverse and metaverse economy easy to digest so we can get past technicalities and on to guidance. Getting too technical isn't helpful here – it doesn't get you to that aha moment.

Over the course of the book, you'll find foundational knowledge, deeper metaverse examinations, trend analysis, basic economics, and concepts adapted from product development and business development. Everybody is coming into this book with a certain level of knowledge. Many readers will be encountering the term “metaverse”

for the first time here. Others could be metaverse or technology experts. Feel free to jump chapters and get what you need out of our content. But keep in mind that we designed the chapters to build a narrative brick by brick, chapter by chapter. If you look at the table of contents, you may notice that we start with the high-level topics – such as describing what the metaverse is – and gradually funnel the reader toward more specific knowledge and actions for building a metaverse strategy and NFT projects. Perhaps our graphic is the simplest way to get the big picture of our message. From discovery to development to iteration, [Figure I.1](#) matches the book's structure top to bottom, chapter by chapter, for a simple (and possibly familiar) compass for your metaverse journey.

Putting this book together has been a humbling experience. We all understand how big the metaverse is, and we can only look at it through the lens of our combined experiences. We are metaverse entrepreneurs, brand consultants, marketers, investors, public speakers, players, consumers, and citizens. We've had hundreds of conversations with metaverse leaders and businesses trying to make sense of this new playground. Through this journey, we've recognized that many brands are focusing on what they can do with NFTs and tokens as an entry point. These are not the only on-ramps to the metaverse, and there are thousands of innovators launching their visions as we speak that will give you even more options. But at this point in history, where the metaverse is still in its diapers, we're leaning toward NFTs in our guidance. At some point, NFTs will become somewhat normalized; they'll be as commonly owned and used as pocket change (when pocket change was a thing). In a few years, VR or AR could easily become the focus of the conversation. But that's why books have sequels and second editions. In short, we don't want to boil the ocean, and our direction in this book is a

reflection of what many, many, *many* businesses are thinking about in this slice of the metaverse economy's maturation.

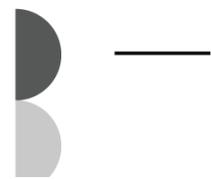
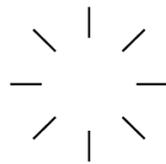
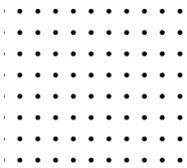
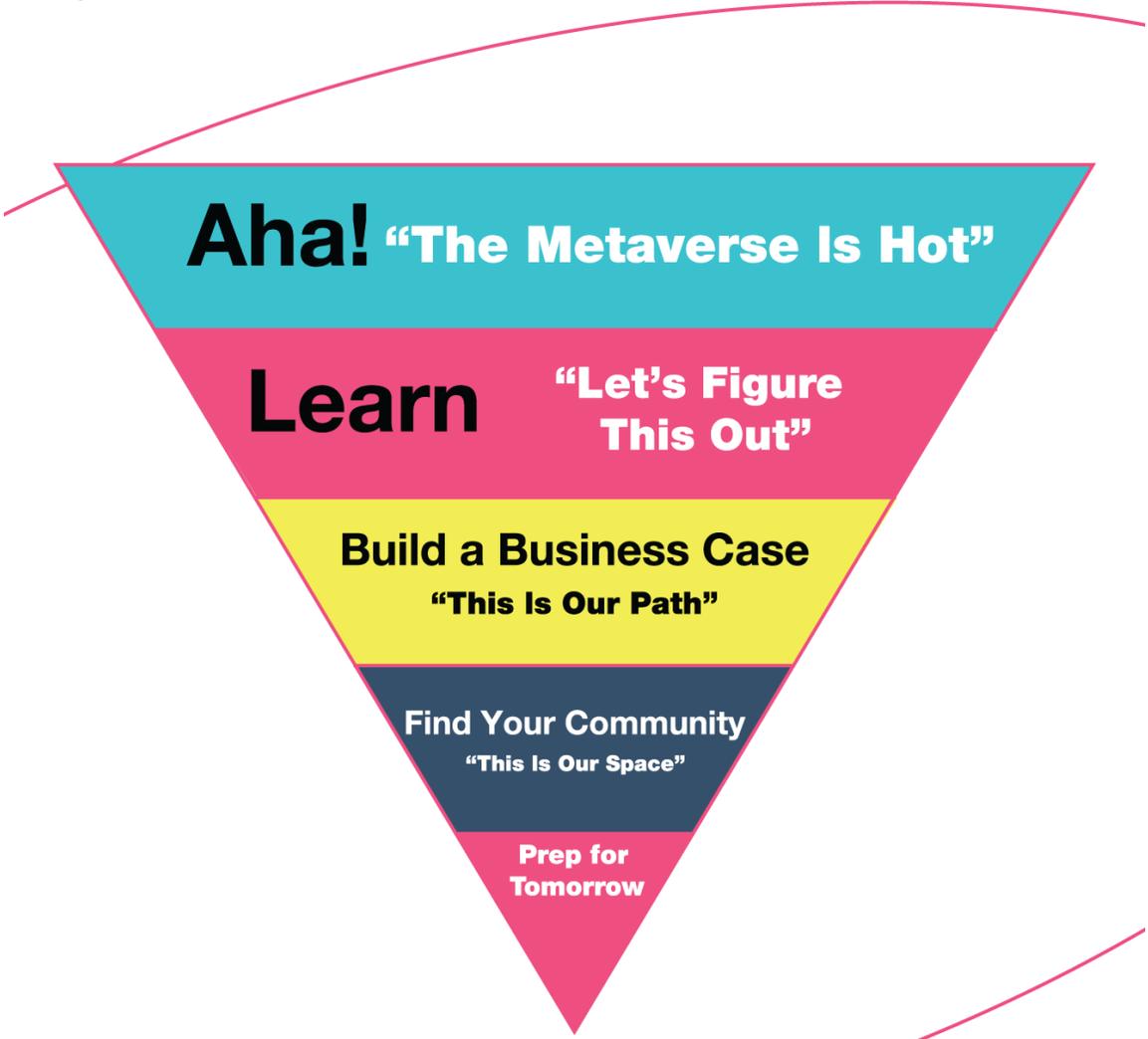
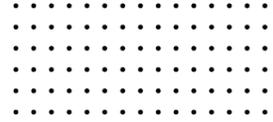
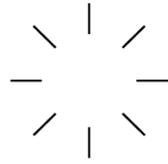


FIGURE I.1 The metaverse economy funnel to action.

Just like those three entrepreneurs who had their aha moment, we hope this book will guide you to yours. That's why you may have noticed that we have three co-authors pouring their knowledge into the book:

- ◆ **Cathy Hackl the Futurist** is a globally recognized tech futurist and top business executive with deep experience working in metaverse-related fields with companies like HTC VIVE, Magic Leap, and Amazon Web Services. She leads one of the world's top metaverse consultancies, working with the world's top brands on metaverse strategies, NFTs, virtual fashion, and how to extend their brands into virtual worlds. She has also been working with Upland on metaverse growth strategies.
- ◆ **Dirk Lueth the Serial Entrepreneur** has held various executive roles within small and large businesses over the years, mentored dozens of startups, and has contributed since 2011 to various projects in the blockchain and decentralized ledger technology space. He brings his experience as a serial entrepreneur with multiple exits and co-founder of Upland, the metaverse platform that is mapped to the real world.
- ◆ **Tommaso Di Bartolo the UC Berkeley Faculty in Entrepreneurship** is a Silicon Valley-based serial entrepreneur with two exits and a faculty member at UC Berkeley, where he lectures about entrepreneurship and innovation with a focus on blockchain. An author, a tech startup investor, and a philanthropist in the future of food, Tommaso speaks seven languages and is a frequent keynote speaker who has taken the stage at renowned events. At Upland, he is part of the

management team and is responsible for Upland Business.

The reason we have a full writing room is because the metaverse is complex. Different viewpoints add color and context. The co-authors' combined forces offer a blend of industry knowledge, hard business, and blue sky aspirations. Within each chapter there's a section for each author's final takeaways on the big topics from their different perspectives. And after all, good things come in threes.

One commonality among all authors is their strong belief in the metaverse's link to blockchain, decentralized applications, user-centric commerce and application governance, NFTs, and the future that Web 3.0 brings. (If you don't quite follow what these things are, don't worry. We explain it all.)

Keep in mind that while we're advocates of the metaverse economy, we're not endorsing or advising any financial or strategic decisions. We want to inspire organizations to find the right path in the metaverse. The route is different for everyone - we're providing a compass.

Thank you for exploring the metaverse economy with us. Here in 2022, we're all metaverse pioneers. While we may be a little farther down the trail than some of you, this is an opportunity for all of us to build the future together.

Let's dive in.

PART I

Getting to Know the Metaverse and Metaverse Economy

Chapter 1

A Primer on the Metaverse

Whether for a new board game, a phone, or other goodies, nobody looks forward to reading instructions. There's an urge to jump in and go. But the sticklers who crack open the manual “get it” faster. The same thing goes for the metaverse economy. Taking a little time to familiarize yourself with the metaverse, including the terminology and basic concepts, will get you past the learning curve and onto exploring the possibilities of the metaverse economy more quickly.

If you feel like you're already past this “metaverse 101” material, feel free to jump past our terminology section. Head over to the next sections for our take on what the metaverse and metaverse economy are, for crucial context you'll need to understand the rest of the book.

We don't want to turn this into a textbook, so we're keeping this section lean. Keep in mind that the space is rapidly changing and terminology may shift with it. The metaverse is being built today and will take some time to reach its final form (if that even exists). It's also important to recognize that different experts have different definitions and may use a slightly different lexicon. This primer will get your feet underneath you to understand our viewpoints and insights, which are a part of the broader conversations happening in metaverse circles. Also, because the metaverse is evolving, we encourage you to look beyond our book to refresh your knowledge and keep up.

Terminology

5G: This refers to the fifth generation of cellular wireless technology, the wireless standard thought to be a critical leap forward in cellular communications. The data transference is said to be strong enough for technology companies to deliver more data with less latency or quality degradation. Here, peak speeds can reach up to 20 Gbps and a 1-millisecond latency. In short, 5G is crazy fast, and these speeds will give metaverse travelers smoother connectivity.

Artificial Intelligence (AI): Artificial intelligence is the ability of a computer or robot to “think” or perform comprehension similar to how humans process information, learn, and solve problems.

Augmented Reality (AR): Augmented reality uses technology to enhance the real world by placing data, interactive digital objects, or other digital media “on top” of the physical world. Pokémon Go is a perfect example, where players use a mobile device to find and capture Pokémon creatures in real towns and cities.

Blockchain: The blockchain stores data and includes smart contracts in a way that enables people to have true ownership of digital assets in the metaverse. Smart contracts created for every transaction are stored in decentralized, peer-to-peer networks designed to offer transparent, traceable, and immutable records. Ethereum, EOS, and Solana are examples of public blockchains. This is in contrast to other data systems that are centrally controlled and can be changed by the operators.

Blockchain is the keystone of the metaverse economy because true ownership of assets is decentralized, which makes it publicly available and reliable. Because of blockchain, people can own authentic digital assets such as non-fungible tokens. Because they are

authentic, “one-of-one” items, there is scarcity. Where there is scarcity, hence desirability, there is (market) value.

Blockchain Gaming: Just as we described blockchain above, games that use blockchain technology have an immutable, traceable data-storage network behind in-game transactions. This is crucial in ensuring players are purchasing and earning authentic digital items (e.g., fungible and non-fungible tokens). The actual in-app or in-game experience covers anything from traditional video game genres to newer “play-to-earn” and “play-to-own” models.

Cryptocurrency: A cryptocurrency, or crypto coin, is a digital currency that runs on its own blockchain. It functions much like fiat currency, with the key differences being that they are 100% digital and managed in decentralized computer networks (versus fiat's central banking system). The biggest cryptocurrencies are Bitcoin and Ethereum. However, there are many cryptocurrencies on crypto exchanges. Currently, there is minimal utility for many cryptocurrencies. However, this may change as the metaverse evolves and cryptocurrency becomes a more dominant form of payment.

Crypto Exchanges: These are (mainly centralized) marketplaces to buy, sell, and trade cryptocurrency and some crypto tokens. Examples include [Crypto.com](https://www.cryptocompare.com), Coinbase, Binance, and Kraken.

Crypto Token: A token is a fungible currency created within a specific application. When these tokens have utility, they're earned inside applications and used to purchase items or services inside their respective applications. A good example is Axie Infinity's Smooth Love Potion (SLP) tokens, which are earned by winning

in-game events and then used by players to breed new Axie creatures.

Crypto Wallet: These wallets are secured software platforms that store a person's crypto assets.

dApp: A decentralized application, or dApp, looks and performs just like any other app from video games to productivity software. The key is the decentralized network behind the user experience that uses blockchain to store data and smart contracts. We break dApps into two major categories: platforms and single-functionality apps. A platform allows other dApps to function inside its ecosystem (think Salesforce's AppExchange), while dApps with singular functionality don't.

Decentralized autonomous organization (DAO): A DAO is represented by transparent rules via computer code on the blockchain that have been defined and are controlled by the organization members. DAOs use blockchain-based smart contracts to record governance rules and voting results. It's "by the people, for the people" governance inside an application.

DeFi: Coinbase defines DeFi, or decentralized finance, as an umbrella term for financial services on public blockchains. You can do most things a centralized bank system supports, such as borrowing, lending, trading, and so on. However, DeFi is a peer-to-peer system that doesn't require an intermediary third party such as a bank.

Edge Computing: IBM defines this as a distributed computing framework that brings applications closer to data sources. Internet of Things (IoT) is a good example: A smart refrigerator is capable of connecting

back to a data source (from the manufacturer) while processing user input.

Fungible Token: Fungible tokens are interchangeable assets with 1:1 value. A good example is Bitcoin; one person's Bitcoin is equal to another's Bitcoin. In-game utility tokens are also good examples.

Minting: Minting “certifies” a digital asset on the blockchain to turn it into a non-fungible token.

Non-Fungible Token (NFT): An NFT is a digital asset that is unique and singular, backed by blockchain technology to ensure authenticity and ownership. An NFT can be bought, sold, traded, or collected. Virtually anything can be an NFT: art, sports highlight clips, game items, even information.

Play-to-Earn Games: This is a relatively new game genre where people play to eventually extract monetary value.

Smart Contracts: Ethereum defines a smart contract as simply a program that runs on the (Ethereum) blockchain. It's a collection of code and data capable of sending transactions over the network. These contracts are not controlled by users. Instead they are deployed to the network and run as they are programmed. Smart contracts have defined rules, like any other contract, and automatically execute them via their coding.

Virtual Reality (VR): With VR, a computer-generated 3D space is generated around the user via wearable technology such as VR goggles. These are typically interactive environments where users not only see a 360-degree 3D environment, but they can “touch” and interact with the environment through handheld devices. A popular application is 3D video games.