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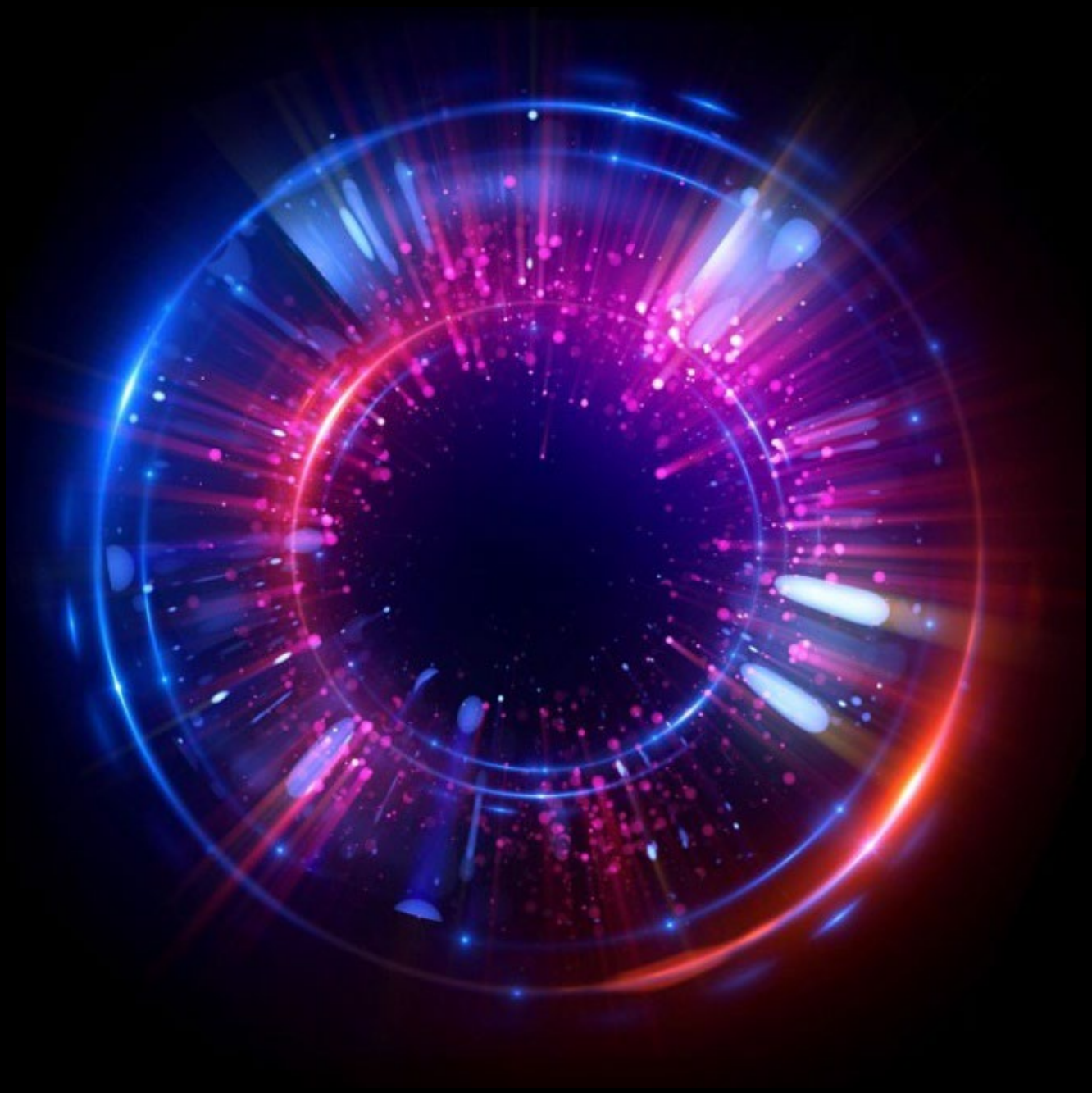

Introduction to Blockchain Gaming

Deloitte Blockchain Gaming Series Part One

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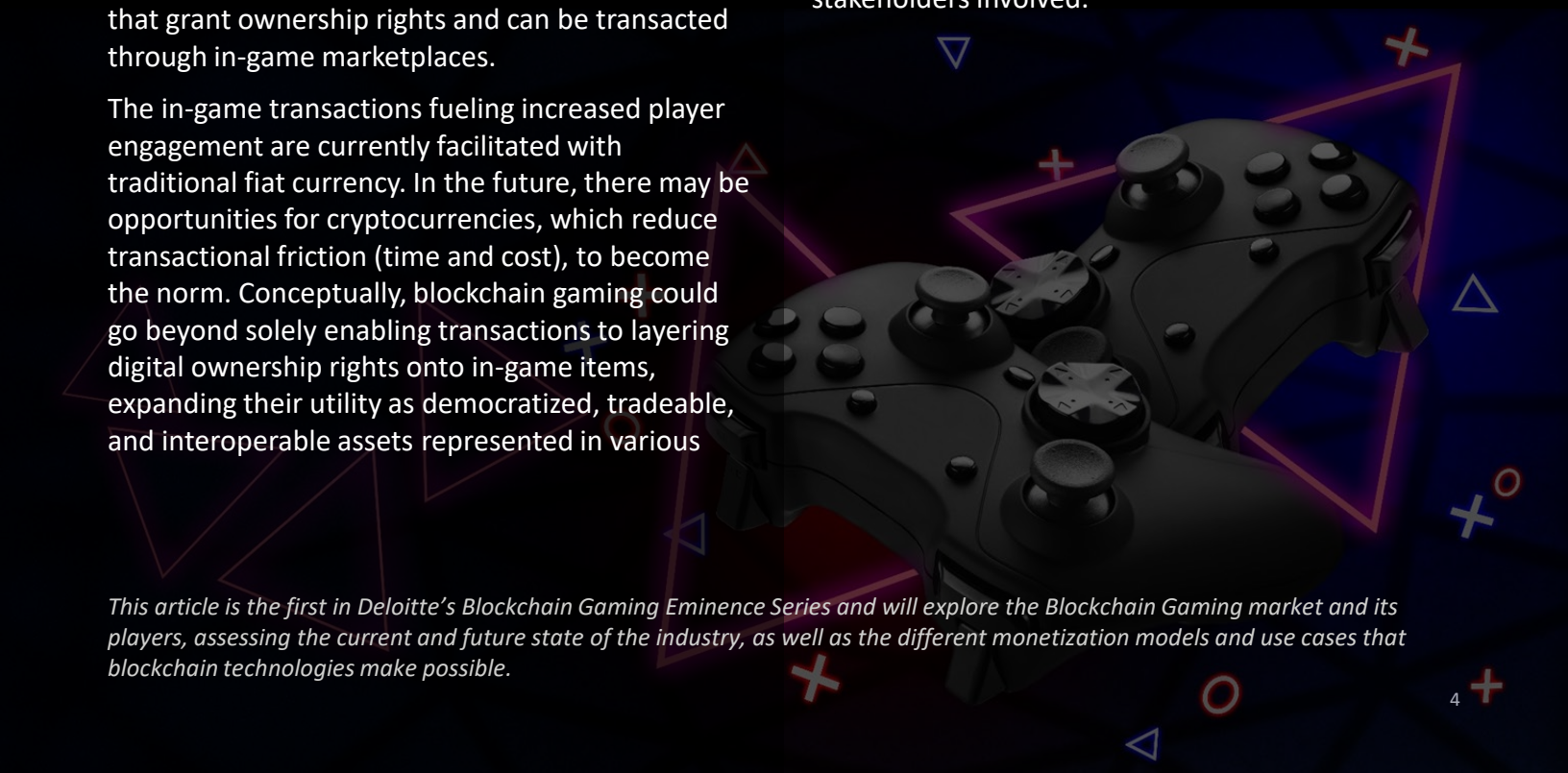
The Intersection of Blockchain and Gaming

Introduction to Blockchain Gaming

Throughout its history, the Gaming industry has been characterized by perpetual innovation and evolution—starting in arcades and shifting to in-home consoles, followed by moving online to join players across the globe, and now onto blockchain. As paradigms gain traction, industry growth continues unabated, with a market size estimated to be worth $435 billion by 2028, corresponding to a record compounded annual growth rate (CAGR) of almost 12.1% from 2022-2028[1]. The tremendous growth predicted is likely owed to positive trends in the size of player bases and frequency of play. In our 16th annual Digital Media Trends report, we found Gen Z and Millennial gamers surveyed play an average of 11 hours a week[2], turning to gaming over traditional forms of entertainment. A recent phenomenon possibly driving this attraction is the movement towards personalization and ability to customize in-game characters and merchandise such as collectibles, which can be linked to digital assets that grant ownership rights and can be transacted through in-game marketplaces.

The in-game transactions fueling increased player engagement are currently facilitated with traditional fiat currency. In the future, there may be opportunities for cryptocurrencies, which reduce transactional friction (time and cost), to become the norm. Conceptually, blockchain gaming could go beyond solely enabling transactions to layering digital ownership rights onto in-game items, expanding their utility as democratized, tradeable, and interoperable assets represented in various digital token forms e.g., Non-Fungible Tokens (NFTs). Digital assets stored on the blockchain become the unique personal property of the gamer, unlocking entirely new gameplay and market possibilities. Furthermore, these digital assets can be stored in a wallet outside of the game, thereby creating security and value for the gamer to transact as they wish.

While blockchain gaming presents tremendous opportunity, there remain hurdles to widespread adoption. There is work to be done to smooth the interaction between gaming applications and the blockchain layers underpinning them, and aversion to the regulatory scrutiny of cryptocurrencies and digital assets has left many game publishers watching from the sidelines. Despite these challenges, blockchain gaming has the potential to be paradigm-shifting, help unlock new markets and provide innovative gameplay experiences, thus presenting a compelling value proposition to all stakeholders involved.



This article is the first in Deloitte's Blockchain Gaming Eminence Series and will explore the Blockchain Gaming market and its players, assessing the current and future state of the industry, as well as the different monetization models and use cases that blockchain technologies make possible.

Market Overview

Investment into blockchain gaming is growing rapidly, with an estimated $2.5 billion raised in Q1 2022 and a projected 150% increase compared to last year in 2021[3]. Current key players in the blockchain gaming industry include game publishers, platforms to serve as a marketplace, and Unlimited Reality[4] platforms to serve as shared worlds in which players inhabit. While blockchain gaming currently occupies only a small share of the $197+ billion industry[5], this increase in investment may signal an accelerated growth trajectory and increased adoption of the technology. As more publishers evaluate incorporating blockchain into their games' DNA, the technology will likely become integral to the industry.

Despite bullish figures, blockchain gaming may still be in its infancy. As of March 2022, blockchain gaming attracted 1.22 million unique active wallets (UAWs)[6] a fraction of the total gaming market. Given this early stage, it is still to be determined whether blockchain gaming will reach widespread adoption. While some publishers have announced plans to incorporate blockchain technology, others have been reluctant to embrace the concept of digital ownership. If blockchain gaming hopes to capture widespread gaming audiences, it will likely need the backing of publishers to invest in high quality gaming experiences to drive player bases (beyond the experimental, seed-funded games we see today), and the willingness to do so varies across companies. For example, Forte recently raised $725 million for its blockchain game platform so gaming companies can create compliant and interoperable blockchain games[7], while many major publishers have yet to enter the space.

There seems to be a clear industry bifurcation between traditional publishers and blockchain gaming developers. The former appears to be cautious about digital assets and blockchain, particularly after initial efforts were met with disapproval from players. The latter is bullish and opportunistic, with mixed results thus far. Some blockchain-native companies have launched fun, innovative games, while others have focused on novel monetization opportunities at the expense of quality in gameplay. With console manufacturers and major publishers being critical for mass adoption, it remains to be seen whether and how they will embrace blockchain gaming into their offerings.

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Blockchain’s Impact

Blockchain gaming's value proposition appears nascent, but compelling. Currently, there are three significant types of utility that gaming companies are trying to extract from blockchain technology. Digital assets, and the distributed blockchain networks behind them, represent a breakthrough in the management of digital ownership rights as well as digital representations of assets. Here is just a sample of the possible breakthroughs these technologies could uncover:

1. **Blockchain technologies can be used for native purposes to record the transactions of in-game items or currencies.**
In essence, this replaces traditional database technologies with blockchain's more transparent methods. Games which rely on collection and trading-based systems are natural early adopters of such technology as they provide a third-party level of transparency into the generation of assets, and subsequent ownership. Although blockchain transparency and traceability can bring immediate value, traditional databases could take an upper hand when it comes to speed of execution and cost.

2. **Blockchain could effectively allow the monetization of gameplay in which players can earn assets through gameplay, which they can sell to other users.**
In many current games, users can engage in in-game activities that result in either earning of currency, or generation of a randomized asset of varied value[2]. Some publishers are capitalizing on the ability of monetization as a marketing mechanism to attract individuals to become early adopters of their games with the promise of real-world value by engaging with blockchain-based games. Along with attracting individuals to the game itself, it may also cause a paradigm shift with the power dynamic moving towards the masses when it comes to how games are structured and how organizations and consumers interact with one another.

3. **Blockchain enables players to sell and trade digital assets, evolving from the traditional B2C marketplace that games typically employ with current micro-transactions.**
This extends the value to players, allowing them to shed skins or items they no longer use, giving new life to other players. This can be particularly useful in sustaining in-game economies as games begin to give players the tools to create and publish their own in-game assets.

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For players, perhaps the most valuable use cases that blockchain and digital assets could address is the true ownership of avatars, assets, items, or currency that expands beyond a single game or developer. Currently, if a player earns a rare "drop" within a single game, the game server is the only place where that event and the ownership of that "drop" is stored[2]. This limits the utility of the item to a single game. If, however, the ownership and the "drop" was stored on the blockchain, the item could theoretically be transferrable to another title. This could be valuable in annualized series like EA Sports games in which titles iterate on a foundational formula each year, creating a through- line of consistent gameplay experiences. In EA Sports' FIFA series for example, gamers could benefit from consistency across titles in the Ultimate Team™ game mode, in which players build and manage their own fictitious teams. Additionally, if developers could create partnership networks in which the ownership of an asset is recognized across different games and platforms, it could establish interoperability among digital assets, allowing for a consistent and more consumer - friendly monetization model. This solution could require both the simplicity of onboarding new partners and the financial incentive for publishers to participate in such a network but could incentivize players to participate across a range of different titles within a centralized economy.

Currently, if a player earns a rare "drop" within a single game, the game server is the only place where that event and the ownership of that "drop" is stored.

Blockchain gaming brings in a lot of hypothetical advantages to the gaming eco-system but needs to execute in a way that can earn players' trust.

These issues can be evaluated based on technical and experience-based dimensions. From a technical standpoint, blockchain gaming brings in the negative concept of degraded blockchain. As soon as the layer tries to interface with an external application, the advantages of blockchain (decentralization, immutable, and trust) vanish as the external application adds a layer prone to hackers. Additionally, scalability can fall victim to the trilemma problem in which no blockchain infrastructure can truly achieve decentralization, security, and scalability simultaneously and equally. Most compromise scalability to achieve the other two which could lead to implementation problems following widespread adoption.

On an experience level, it can become extremely difficult to justify play-to-earn, a business model introduced by blockchain gaming that has been met with notoriety. Some consider play-to-earn to be a Ponzi scheme in which developers reel in players and buyers with big promises, then abandon them once speculation inflates the associated property's value.

Gamers likely need to see actual value-based items and equitable economies generated through gaming to make this model work.

Digital Asset Use Cases in Gaming

What do Digital Assets offer to the Gaming Community?

For players, the application of this technology is evolving in different ways. Building off traditional downloadable content (DLC) models, digital assets have the potential to give players avenues to own and purchase additional assets while unlocking interoperability, and player-driven marketplaces. How this content will function in games will be up to the developers, however the primary use cases will likely typically fall under one of the following categories:

1. **In-Game Merchandise**
These can be a) functional items, bonuses, tools, or stat-boosts that impact the gameplay or abilities of the player; or b) items which purely affect the appearance, aesthetic, or mannerisms of a player's character or environment. Like a mount in an adventure game or uniform camouflage in action titles, these items promote personalization of gameplay. This becomes increasingly important as games evolve into social hubs and metaverses, where players can not only compete within game worlds, but also socialize and participate in events, such as Fortnite's in-game concert.[8]

2. **Collectibles**
Similar to virtual baseball cards, these items have no impact on gameplay or appearance, but are items that can be viewed, managed, and stored in-game, or in other cases within a broader ecosystem. Gaming platforms have dabbled with collectible items in the past, but digital assets expand upon collectability to bear the ability to buy, sell, and swap from other players, creating a metagame which forms entire communities[2].

3. **Access Tokens**
Assets which if owned, provide access to in-game or real-world events or items. Perhaps a developer wants to beta test a game, but only wants a limited number of dedicated players to do so? Tokens can be used to grant specific groups access to content based on ownership. Similarly, if that same developer were to host a launch-event in New York to celebrate the release of their title, tickets could be distributed in the form of digital assets, creating an experience that translates across virtual and physical worlds that also allows publishers to recognize and reward their most loyal players.

4. **Private Chains**
A compelling value proposition for publishers is the ability to create exclusive in-game economies, which could entail royalty payments or digital asset transfers to players that can only be earned and reused within the publisher's environment. Private chains enable this exclusivity, creating stickiness for capturing and retaining players within a platform or game. The use of private chains to enable platform economies provides the benefit of exclusivity as well as reduced transaction friction.

The use cases for Digital Assets in games will likely continue to evolve and permutate based on emerging trends, consumer behaviors, and technologies that drive new gameplay experiences. As widespread adoption occurs, so too can innovation within how developers choose to leverage digital assets.

Blockchain Monetization Models

Gaming Revenue Streams

The introduction of the blockchain concept within the gaming space has opened a wide range of opportunities for the traditional gaming space to diversify and enter different revenue streams. Four major types of monetization models that currently exist include:

Pay-to-Play . Free-to-Play . Play-to-Earn . Play-Create-Earn

Pay-to-Play and Free-to-Play are traditional models that existed prior to blockchain gaming with Pay-to-Play being the norm for decades. Free-to-Play emerged during the rise of digital distribution, in which publishers lowered the monetary barrier to entry in favor of recurring revenue formats through in-game transactions, such as battle passes and loot boxes. Some titles, such as annualized sports games, implement a multiple payment-based hybrid approach in which players are charged up-front for the license to play, then offered additional in-game items to purchase.

1. Pay-to-Play

A monetization model designed to accrue revenue upfront for the gaming publisher usually during the purchase phase of the game. This helps the title creators collect revenue through the up-front purchase of a title. This model can also be further divided into two categories:

i. **One Time payment based:** Games wherein a player must only pay a one-time fee—usually at the time of buying the title or downloading it. The player can then enjoy the title with its complete features and in-game purchases being already unlocked

ii. **Multiple Payments based:** this is like one-time payment based during the purchasing phase, but the player does not receive all features and must invest in in-game purchases or expansions to experience the full breadth of content.

With Pay-to-Play being the norm for decades, Free-to- Play emerged during the rise of digital distribution, in which publishers lowered the monetary barrier to entry in favor of recurring revenue formats through in-game transactions.

2. Free-to-Play

The free-to-play monetization model is aimed at maximizing a game's user base through removing initial entry fees either through free access to the gaming environment or free downloads, with a requirement to purchase later. The model was popularized in the 2010s and has since become the default model for many multiplayer online games. Free-to-Play can be broadly categorized into two buckets:

i. **Partial Free-to-Play:** This model enables the users to freely download and access the environment in its entirety. The publishers don't earn revenue through game downloads or access rights but can earn revenue through advertising. Players are shown advertisements in between matches, or in-game banners which help in creating brand awareness amongst new users acting as an effective marketing channel.

ii. **Hollow Free-to-Play:** Colloquially referred to as the "Freemium Model", free-to-play operate wherein the access and download is free and the publisher earns revenue by selling additional cosmetic items, gameplay modifiers, and other personalization options. These in-game transactions are often referred to as microtransactions.

Some developers have also experimented with 'free-to-own' in which players can participate in in- game economies and collect digital assets without being required to pay the expense to mint the asset itself.

3. Play-to-Earn

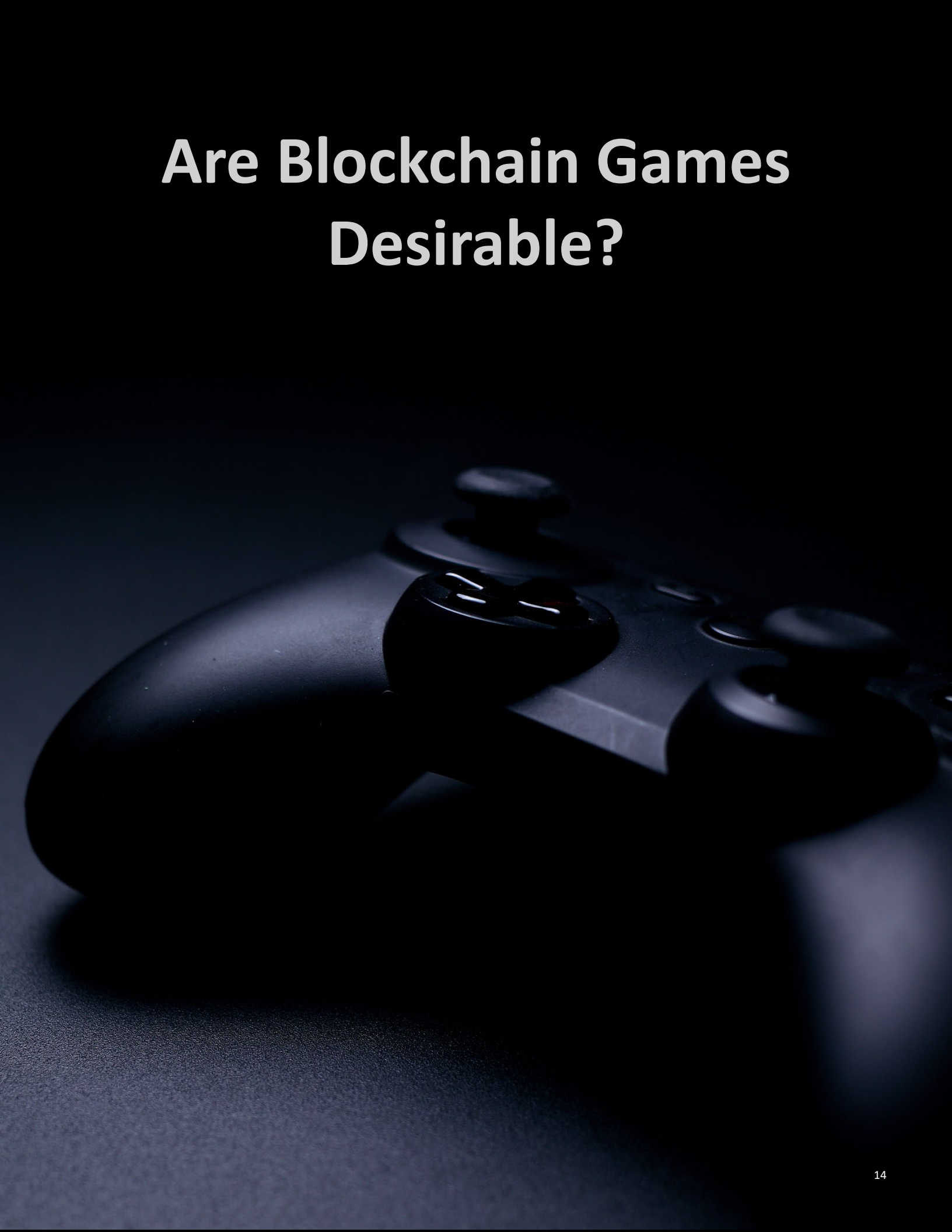
This monetization model provides players with true ownership of the digital assets they have earned in the game through gameplay using blockchain technology. Players continue to own the asset, even if they no longer play the game, and can choose to sell the digital asset to other players, creating a market for exchanging assets with real-world value. Assets can be awarded as a result of completing a quest, attending a virtual event, demonstrating loyalty (i.e., playing for a certain period) or farmed as a result of collecting resources. When working with assets, developers can create demand by introducing a fixed number of scarce assets into the game. This would have players flock to the game to obtain these scarce assets and bring financial benefits for both players and developers. This model is highly experimental – as a game blends real-world value with gameplay, it promotes bad actors, speculative markets, and bots, all of which can disrupt or collapse a game's economy. In fact, 52% of adults in the US say that they are not interested in Play-to-Earn games as they prefer the passive enjoyment that gaming experiences can provide.9 However, if the proper balance is struck and appropriate guardrails are implemented, the potential value creation for loyal and skilled players could be significant.

4. Play-Create-Earn

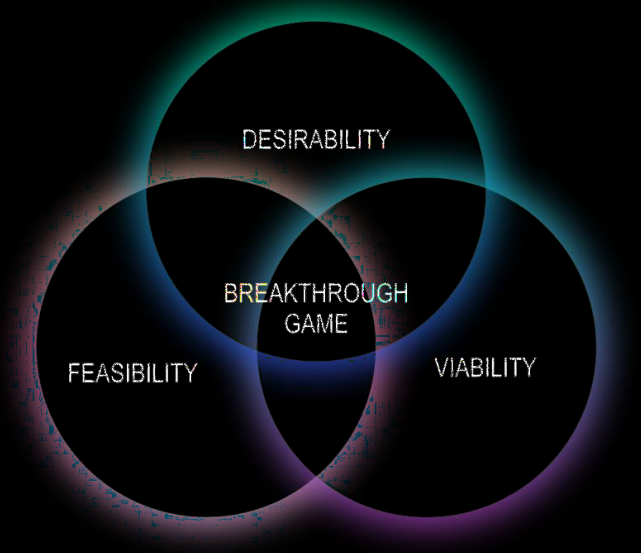
Like the Play-to-Earn model, this model also employs a system wherein users can have control of their digital assets and can transact between players. However, in addition to being able to sell digital assets created by the developer, players can also create and mint their own digital assets. In some cases, a voting system exists within the game in which the topmost digital assets are inducted within the game as official assets. Once these assets are inducted, other gamers can buy these digital assets and a percentage of the sales revenue goes to the player who had initially created that digital asset.

Play-to-Earn models leverage in-game markets which allow players to sell-in game assets to one-another, creating monetization opportunities for players. These are delicate systems however; if a game's economy entirely rests on those looking to earn, then it can devolve into a pyramid scheme.

Are Blockchain Games Desirable?



From a revenue generation standpoint, blockchain gaming has the potential to create new avenues for monetization. However, where the use case of the technology remains unclear is around an often overlooked, but crucial factor: **is it simply fun?** For blockchain gaming to succeed, digital assets likely can't just be an attractive investment opportunity; they should solve for the element of entertainment value and create use cases that lead to compelling new forms of gameplay for players.



As it stands, many of the emerging titles we see today have designed early use cases, but it could be arguable none have managed to present high-quality gameplay experiences. A strong core gameplay loop should be able to stand on its own to sustain a player's attention, and very few games in the blockchain gaming space have presented particularly notable or compelling forms of gameplay. There are likely two reasons for this:

1. **Games which follow a play-to-earn model tend to incentivize player engagement through extrinsic rewards, rather than inherent fun or entertainment value.** Games which follow a play-to-earn model tend to incentivize player engagement through extrinsic rewards, rather than inherent fun or entertainment value. Whereas traditional retail titles should earn sales through offering and delivering on great experiences, many blockchain games attract audiences through an inflated promise of earning potential, which on its own likely can not sustain a platform (especially when a disproportionate amount of a player base is seeking to profit).

2. **The average blockchain game on the current market lacks depth, strong gameplay design, and quality that players are accustomed to in the traditional gaming space.** More akin to a tech demo than a real game, many blockchain games have creative ideas, and present one-dimensional experiences with limited reason for players to engage in sustained, lengthy gameplay.

Much like the mobile game market, which initially offered simplistic games used to test the feasibility through the functionality of touch screens, and viability through low price points, blockchain games still exist in a nascent phase of its lifecycle in which enthusiasts, developers, and early adopters may enjoy testing ideas, but mainstream audiences will likely find little value in core gameplay. However, as the mobile market grew and developers learned from one another, games began to improve in quality and depth, merging the potential of the emerging technology with the established game design principles that make games fun.

While current blockchain games may not be the killer app players are waiting for, they do serve a purpose in the ecology and growth of the medium by testing new ideas and use cases as minimum viable products. For blockchain gaming to reach exponential growth however, developers may now need to be bold in capitalizing on these ideas to deliver high-quality, engaging, and fun experiences.

Conclusion

Blockchain, and the emergence of play-to-earn and play-create-earn models, are emerging technologies and concepts in this new age of gaming and Web 3.0. However, like free-to-play models and DLCs disrupting the industry before it, it is likely they will need time to mature and assimilate within gaming systems, design, and culture. While some bullish publishers seek to take advantage of blockchain's technology to provide new products and services to gamers, others remain skeptical about implementing the technology within their games, since they face many technical, and cultural hurdles. As the industry evolves into this new era of gaming, developers and publishers should be thoughtful about the economies they're building, which should be grounded within player value and trust.

As this experiment in blockchain gaming continues to unfold, the pioneers and trailblazers could be critical in fleshing out the use cases, benefits, potential costs, risks, and competitive advantages for players. In our next Blockchain Gaming Series, we will explore those players, diving deeper into the ecosystem and the biology that makes up blockchain gaming.

Endnotes

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Glossary

- **Blockchain:** A decentralized public digital ledger that records transactions across multiple computers, in which records cannot be altered retroactively without the amendment of all later blocks and the agreement of the network.
- **Cryptocurrency:** A digital currency in which transactions are verified and records maintained by a decentralized system using cryptography, rather than by a centralized authority.
- **Decentralization:** Transfer of control from a centralized entity (individual, organization, or group thereof) to a distributed network.
- **Digital Wallet:** A software program that allows one to store cryptocurrencies and NFTs, and to make electronic transactions with other parties via cryptocurrencies for goods and/or services.
- **Immutability:** The ability for a blockchain ledger to remain a permanent and irreversible history of transactions.
- **Minting:** Validating information, creating a new block, and recording that information into the blockchain.
- **Non-Fungible Token (NFT):** A unique digital asset that signifies real-world objects like art, music, in- game collectibles, videos, and any other digital creation.
- **Trust:** A special form of a contract between the creator of an asset and the person that owns the asset.
- **Unlimited Reality™:** Term coined by Deloitte to encompass virtual and augmented reality.

Authors

Hanish Patel
Managing Director
Deloitte Consulting LLP
hanpatel@deloitte.com

John Shehan
Consultant
Deloitte Consulting LLP
jshehan@deloitte.ca

Aditya Singh
Senior Manager Deloitte Consulting LLP
adityasingh@deloitte.com

Siddharth Rawat
Consultant
Deloitte Consulting LLP
sidrawat@deloitte.com

Sameer Nizamuddin
Manager
Deloitte Consulting LLP
sanizamuddin@deloitte.com

Ryan Goldberg
Consultant
Deloitte Consulting LLP
rygoldberg@deloitte.com

Patrick Monaghan
Senior Consultant Deloitte Consulting LLP
pamonaghan@deloitte.com

David Niciforo
Analyst
Deloitte Consulting LLP
dniciforo@deloitte.com

Contributors

Jordan Wiggins
Principal
Deloitte Consulting LLP
jorwiggins@deloitte.com

Richard Goldsmith
Senior Manager
Deloitte Consulting LLP
rgoldsmith@deloitte.com

Stephen Bradley
Managing Director
Deloitte Consulting LLP
stebradley@deloitte.com

Ujval Chopra
Senior Consultant
Deloitte Consulting LLP
ujchopra@deloitte.com

Wendy Henry
Managing Director
Deloitte Consulting LLP
wehenry@deloitte.com

Artem Beer
Senior Consultant
Deloitte Consulting LLP
abeer@deloitte.com

Jarick Poulson
Managing Director
Deloitte Tax LLP
japoulson@deloitte.com

Mark Osis
Senior Consultant
Deloitte Consulting LLP
mosis@deloitte.com

Chris Deans
Senior Manager
Deloitte & Touche LLP
chdeans@deloitte.com

Michael Timothy Lino
Analyst
Deloitte & Touche LLP
milino@deloitte.com

Deloitte.

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