Gaming the Systems:

Non-Fungible Tokens and the Blurring of Gambling and Finance

in Play-to-Earn Games

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Abstract

Non-fungible tokens (NFTs) are a form of digital asset that functions as a receipt or other representation of ownership. In more technical language, NFTs are a string of characters logged on a blockchain. NFTs' relationship to artworks, gaming items and avatars, music, films, digital trading cards, and more suggests a direct relationship to media artifacts while broadening the parameters of what might be considered media through a process of digitization and further mediation. Applied to gaming software, NFTs act as a new form of monetization and further gambling's role in the design of interactive media. This study examines two different NFT projects, developer Sky Mavis' "Axie Infinity" and developer Virtually Human Studio's "ZED Run", to better understand the nature of NFT applications and their users. This study analyzes user activity in the applications' associated Discord servers, public-facing platform documentation, and the applications themselves. This work examines the increasingly complex, marketized, commodified, ambiguous, volatile, and gamified reality of NFT applications.

This work is less concerned with what users do or will do next and instead considers the experiences, feelings, and beliefs that inform user actions and reflect contextualizing factors explored in the literature review. Although gaming, gambling, and financial investment share similar motivations, they do exist as different topics of interest, necessitating the inquiry into users' feelings and motivations with attention towards the extent with which those feelings align with the expressed purposes of the applications central to this study. Additionally, this work posits that the interests of capital (private property, accumulation, consumption, etc.) act as a form of external

pressure or contextualizing factor that informs the actions of users of NFT games and applications. This study's findings indicate a cultural climate defined by characteristics such as distrust, uncertainty, inequalities of power, exploitation, educational interest, financial desire, and the intertwined nature of systems and communities that may entertain, enrich, or extort.

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Introduction

Non-fungible tokens (NFTs) are a form of digital asset that functions as a receipt or other representation of ownership. In more technical language, NFTs are a string of characters logged on a blockchain. NFTs' relationship to artworks, gaming items and avatars, music, films, digital trading cards, and more suggests a direct relationship to media artifacts while broadening the parameters of what might be considered media through a process of digitization and further mediation. In time, NFTs' unique, technological, social, political, and economic characteristics might reconfigure what is presently and independently regarded as media (for example, films) as well as digital representations of non-media objects (such as digital renderings of houses or consumer packaged goods).

While fungible (interchangeable) cryptocurrencies and more conventional, fiat currencies (such as the U.S. Dollar or Japanese Yen) can be exchanged for one another in like-for-like fashion, the same cannot be said of NFTs despite what an initial impression of the assets' aesthetic qualities might suggest (Dowling, 2022). From a critical-cultural perspective, NFTs exist as fertile ground through which to assess the present moment as they represent a slew of ever-changing and overlapping cultural features, technical mechanisms, and financial systems. Through a blurring of emotional designs, game-like features, and financial purposes, everyday individuals experience in conscious and unconscious ways additional sources of pressure contributing to the pursuit of risk, increased commodification, the adoption of an investor's perspective, and an emphasis of the utilitarian and deemphasis of the aesthetic (Zaucha and Agur, 2022). These pressures contribute to an increasingly gamified and volatile financial environment; one that might

further transform social and cultural spaces into those better suited to the interests of capital, with such spaces espousing the importance of private property, communicating the benefits of capital accumulation, and prioritizing consumptive action in the interest of fluid and competitive markets.

Applied to gaming software, NFTs act as a new form of monetization and further gambling's role in the design of interactive media. This study examines two different NFT projects, developer Sky Mavis' "Axie Infinity" and developer Virtually Human Studio's "ZED Run", to better understand the nature of NFT applications and their users. This study analyzes user activity in the applications' associated Discord servers, public-facing platform documentation, and the applications themselves. This work examines the increasingly complex, marketized, commodified, ambiguous, volatile, and gamified reality of NFT applications, building on previous work on the commodification of fandom" (Zaucha and Agur, 2022). While previous interest in Dapper Labs' NBA Top Shot relates primarily to increased pressure to view one's life, interactions, and consumptive acts from the position of the investor (Zaucha and Agur, 2022) and an understanding of the NFT space as an environment for marketized interactions, this work shifts focus to the gamified and gamblified nature of NFT applications, which serve as contextualizing factors in the prior analysis. As NFT applications and their associated markets reflect a blurring or entanglement of myriad concepts – including finance, gaming, and gambling, the applicability of literature relating to these other contextualizing factors will vary when comparing Sky Mavis' "Axie Infinity" to Virtually Human Studio's "ZED Run". Although this study's core thematic interests are represented in each of the two objects of study, this work intends to emphasize the

gamified nature of the former, and a gamblification of entertainment and financial media represented by the latter.

Gambling is viewed by Bjerg (2009; 2011) as a precise melding of capitalist consumption and intensity, and by Albarrán-Torres (2015) as implying a ludic circulation of funds. Taleb (2005) defines the activity in general terms as one where an individual "gets a thrill when confronting a random outcome" (p. 187). It is, as Nicoll (2019) says, a ritual of objects and chance taking place in daily life. Cosgrave (2022) summarizes a view of gambling present at a time of its perceived deviancy as an effort towards upward mobility, a response to present social structures, and a means of integrating the economically unsuccessful (Devereux, 1949; Merton, 1968; Zola, 2006). Observation of NFT purchasers' rationalizations (in this study and in previous work) indicate an attempt to become upwardly mobile through engagement with gambling-like systems. Conventional gambling games present in a casino environment, the ubiquity of mobile gambling games that might mimic or digitize those activities, the salience of today's retail investors, the mainstreaming of sports gambling, and the adoption of NFTs as both entertainment media and financial instruments suggest the extent to which chance is embedded into the fabric of daily life, as well as the fortification of this embeddedness (Cosgrave, 2022) through a normalization of gamble-play media.

Gambling is also an increasingly ubiquitous intersection of gaming and finance encountered across utilitarian and entertainment contexts. However, individuals' awareness of gambling and gambling-like systems may vary, indicating that gambling's role in interactive systems may not be clear to users. Much like finance, gambling is a set of cognitive strategies employed in an effort to navigate uncertainty (de Goede, 2005).

Johnson (2018) notes that a blurring of gambling and finance is, historically, nothing new, and that clear division between the two is something that came with time. The same can be said of the belief that the distinction between the two is eroded in ways realized and unrealized, as the current blurring of gaming, gambling, and finance reflects subtle cultural and attitudinal changes. This study's theoretical foundation is captured by Cosgrave (2022), who reflects upon the cultural significance of gambling in the context of late capitalism and its increasing ubiquity, questioning what this ubiquity says about a societal approach to economics, money, and capitalist accumulation. Rowley (2022) holds a complementary view of gambling as an "important trait in the changing American sense of identity" following "the three-decades-long, meteoric expansion of casinos throughout the country and the ubiquitous presence of games of chance in our everyday landscapes" (p. 347). Related to this discussion of gambling and its reflection of cultural traits, needs and structures is McLuhan's (1964) suggestion that "the games of a people reveal a great deal about them" (p. 259) and Kerr's assertion—one that could be applied to a study of NFT games—that "Digital games cannot be understood without attention to the late capitalist economic systems from which they emerge and the changing political, social, and cultural contexts in which they are produced and consumed" (Kerr, 2006, p.43)

Although this work's primary point of interest is a study of NFTs, its theoretical framework and discussion of media and financial technology establish NFTs as a form of emerging media, as well as a form of asset or financial instrument that is both new and familiar. In doing so, this work contextualizes blockchain technology, cryptocurrencies, and NFTs as components of a multifaceted, volatile, and ever-evolving financial

landscape. This is a study of converging media and financial environments, one that impacts culture through its contributions to financialized thinking, and one that captures an expansion of gambling-like activities with attention towards the harms such an expansion might foster. With this in mind, this study considers changing understandings of currency that function as significant, disruptive forces, and impact the lives of "households, corporations, investors, central banks, and governments" in "profound ways" (Prasad, 2021, p. 7). Of note, cryptocurrencies and the considerable impacts they impart largely exist beyond the domain of governments and banks, and serve an intended purpose of circumventing institutional and regulatory entities in ways agreeable with a more libertarian view of the financial landscape; one informed by residual anxieties following the financial crisis of the late 2000s (Prasad, 2021). Understandably, cryptocurrencies have been the object of much governmental scrutiny (Arjaliès, 2021). This study includes some discussion of cryptocurrencies and their associated markets, as both cryptocurrencies and NFTs act as vehicles through which a nongovernmental vision for blockchain technology might be advanced. Alongside this, cryptocurrencies are relevant to a discussion of NFTs due in part to the accepted forms of payment related to NFTs (which represent a platformization of financial transactions) (Westermeier, 2020), as well as the support NFTs have received from cryptocurrency proponents across various media channels (Zaucha and Agur, 2022).

Changes in access to, and the utility of, digital currencies, have resulted in increased competition for government-backed fiat currencies of old (Prasad, 2021). Digital currencies and associated assets (in the case of this study, NFTs) represent Strange's (1986) warnings of the potential for the pace of technological change, and the

new financial instruments and transactions this change entails, to outstrip the ability of regulators. Such changes have been a long time in the making, with financial markets developing in ways intended to improve safety and efficiency while fostering innovation through a lessening of regulatory oversight (Prasad, 2021; Rajan 2010). Ultimately, a tension between public (governments and their fiat currencies) and private (individuals, organizations, and alternative currencies) creators of money is at the heart of this study as a normalization of NFTs entails the continued normalization of cryptocurrencies and blockchain technology, which stray further from the conventional expectation that centralized, government entities act as primary creators of money and are supplemented by private organizations such as banks. This tension between public and private, one furthered by the ubiquity of NFTs and cryptocurrencies, represents a struggle of wealth and power wherein money and other assets are reduced to mere commodities (Strange, 1986).

Although objects of popular culture such as NFT games might seem a peculiar context in which to engage in a struggle of the powerful, Hall (2010) views popular culture as "one of the sites where this struggle for and against a culture of the powerful is engaged" as it is "the arena of consent and resistance" and it is "partly where hegemony arises, and where it is secured." (p.79) By extension, media is an environment through which popular culture is made available to interested audiences. Money and financial assets may also seem like an odd vehicle for a critical-cultural study of media. Ingham (1996, 2013) views money as a form of social relation, while Simmel (2004) describes money as contributing to the creation of a larger network of human relationships but acknowledges that the more utilitarian purposes of money render a dehumanizing effect

on said relationships. The media connected to NFTs, the communications technologies that support their many communities, and the mechanical nature of NFT markets foster utilitarian relationships that possess a similar frigidity as those described by Simmel.

Observations present in Giddings and Harvey's (2018, p. 650) work describe today's financial landscape as one defined by increasingly ambiguous, ludic economies that function as vehicles for capitalism:

> while it might be too much of a stretch to argue that contemporary economics are playful, there is certainly a widespread perception that… the global and national economies are no longer the (pseudo) natural operation of market laws, of supply and demand, of the distribution of strictly limited resources. Rather they are more game-like in their abstractions, complexity, and symbolism

Play and playfulness are essential characteristics of this work's objects of study (the applications themselves), their communities, and markets. This study of Axie Infinity and ZED Run considers the dual purposes of the applications as entertainment media (in this case, video games) and financial instruments, culminating in an entertainment and financial environment that advances Giddings and Harvey's (2018) concerns of a playful or game-like economics. This blurring of entertainment and financial contexts echoes Strange's (1986) warning of an increasingly casino-like approach to financial investment that has ramifications for both participants and non-participants. Strange asserts that a casino-like approach to finance voluntarily impacts investors and involuntarily impacts non-investors, suggesting that it is everyday individuals who are first to experience hardship as a result of others' financial decisions.

NFTs represent changes in financial contexts, the embeddedness of chance in daily life, and other thematic interests present in this work but are, at their most basic level, a new form of video game monetization, with both objects of study regarded as "play-to-earn" games. These games depart from previous monetization strategies such as loot boxes and instead entail an exchange of digital items and external funds, which Scholten et al. (2019) suggest situates these games more closely to gambling activities. With this in mind, academic contributions from game studies function as an essential pillar of this work's theoretical foundation. Games contain civilizing and socializing dimensions (Cosgrave, 2022) and can act as a venue through which patterns of culture might be identified (Caillois, 2001), making them rich territory for social science research. Hall's (2010) assertions of the importance of pop culture analysis can be aptly and broadly applied to a study of games, including play-to-earn games such as Axie Infinity and ZED Run. As the categorization "play-to-earn" suggests, the ability to earn money is a central feature. These games require the player to possess assets (NFTs) to participate and represent a new and markedly different relationship between money and gameplay. Johnson (2022, p. 2) describes the role of money in play as "one of the most noticeable gaps in the game studies canon", acknowledging that game studies has most often explored purchasing patterns (Liu, 2010; Bounie et al., 2015) and microtransactions (Park and Lee, 2011; Evers, Van de Ven and Weeda, 2015; Švelch, 2017), which are summarily defined as "small amounts of money which give players access to new virtual goods in digital games" (Johnson, 2022, p. 2). Although a direct relationship between gameplay and money is nothing new, NFTs depart from a more conventional understanding of gameplay as an activity motivated by interest in the simulation of

emotions, the demonstration of skill or pursuit of personal accomplishment, the appeals

of competition, the stress-relieving benefits of diversion, the empowerment of fantasy,

and a need for social interaction (Sherry et al., 2006) to a colder, more utilitarian view of

gameplay as a means of making money through interaction with markets and gameplay

systems. Exploration of this distinction entails an assessment of gaming through a

financial lens and an assessment of emerging finance through the language of game

studies. These varied perspectives address some of the gaps in the game studies canon

related to games and money, while simultaneously exploring the gamification of finance.

In the context of this study, NFTs related to Axie Infinity and ZED Run act as

functional props (Lin and Sun, 2007), that bolster users' in-game performance, directly

impact the outcome of the game, and provide access to the gameplay environment to the

player, with this access meeting the "requirements of the quest context" description

proposed by Guo and Barnes (2009) and contrasted by Park and Lee (2011). Beyond this

more utilitarian view of virtual goods, Lehdonvirta (2009) details the presence of social

and emotional attributes. The perception of NFTs as odd or puzzling, as well as their

relationship to gameplay experiences, might suggest limited ability to impact cultural and

financial systems. Goggin (2022), writing on the topic of playing cards, gambling games,

and their relationship to a normalization of finance suggests that it is the ubiquity and

seemingly-trivial view of objects such as playing cards which allows the objects to go

unnoticed and to impact "our collective, historic (un)conscious" (p. 122). Applied to

NFTs, these objects could be viewed as trivial to some and as meaningfully impactful

financial tools to others, with this varied understanding complicating the assessments of

regulators, consumers, and those who seek to understand NFTs' cultural relevance and impact.

There is a need to revisit the approach taken in the previous study of NBA Top Shot, as the application of a similar methodological approach to other objects of study might help to elucidate the unique contributing factors present in the blurred and intertwined set of conceptual interests beyond those emphasized in the previous study's findings. While NBA Top Shot represents a march towards increased marketization, financialization, and commodification, this study emphasizes gaming and gambling opportunities related to non-fungible tokens and blockchain technology, which suggest shifts towards increased risk-taking and a blurring of financial and entertainment contexts. Ultimately, it is the concern of this work that such a blurring of contexts, and an appealing obfuscation (Schüll, 2012) of purposes and designs related to those contexts, is likely to be felt most seriously by those of greater financial vulnerability. This concern, and the apparent separation between those who affect (banks, corporations, wealthy investors) and are affected (individuals, workers, low and middle-income families) by instability and uncertainty is captured in a prescient passage of Strange's (1986) work, with the author acknowledging that the act of drawing attention to this unequal burden of risk and reward is thought to lack political benefit. Functionally, this suggests that regulatory efforts to protect the most vulnerable from the consequences of a volatile and game-like financial system, the dangers of an expansion of gambling and gambling-like opportunities, and a preponderance of predatory monetization strategies present in media are less likely to be pursued.

The literature review that follows illustrates the relevance, importance, and purpose through which additional study of NFTs is pursued, and builds to this work's guiding research questions. To further understand the objects of study central to this analysis, this study will engage in an exploration of literature related to NFTs, emerging finance, marketization and financialization, platformization, play, design, unpredictability and cognition, gaming and gamification, gambling, and finally the topic of gamble-play. Gamble-play encompasses a blurring of gaming and gambling taking place across cultural practices (Albarrán-Torres 2014), where gambling is present in the odds and ends of daily life (Raymen and Smith, 2020), and where the persistent and technologically-driven mechanisms of late capitalism have given rise to a 'post-disciplinary society' wherein clear delineations between space and time are eroded (Fisher, 2009) by a slew of competing social, cultural, and economic pressures. With this in mind, this study's guiding research questions are as follows:

> *RQ1*. What is the intended user experience for Axie Infinity and ZED Run according to user and developer messages, application features or text, and registration processes?

> *RQ2*. What is the user experience for Axie Infinity and ZED Run like in practice based on user messages, application features or text, and registration processes?

> *RQ3*. How do users navigate tensions between entertainment opportunities occurring in a platform environment and NFTs' financial considerations occurring in and beyond the gameplay environment?

RQ4. What motivating factors appear to predict engagement with NFT gaming

and gambling experiences?

Broadly, these research questions reflect a convergence of concepts present in a platform environment.

Posts included in the textual analysis portion of this study are gathered from Discord. Discord is a communications platform offering users the opportunity to engage with one another through voice-supported chat rooms, text messaging, video calling, and file and media sharing options. On its website, Discord (2022a) describes its communities as "servers" which include topic-specific channels and offer users the opportunity to "collaborate, share, and just talk about your day without clogging up a group chat" in places "where you belong." Discord communities are said to offer "moderation tools and custom member access" (Discord, 2022c). These moderation tools, alongside the various features leveraged by users, make Discord an ideal environment for brands to communicate with their publics of interest in ways that afford brands an appropriate level of governance, providing a mix of brand control and user flexibility. Although Discord has expanded the relevance of its services to a wider range of communities and interests, the application was initially intended to support social gaming. As a result, servers related to specific games or gaming in general are commonplace on Discord.

Discord has also become a regular feature of NFT and blockchain projects, making it a helpful environment through which to better understand the purposes, interactions, and experiences of individuals interested in NFTs and their associated pay-to-earn gaming applications. Although the diffuse nature of online gaming communities might otherwise hinder their observability, branded Discord servers offer a unique

opportunity to view an intersection between brands and their publics of interest, providing researchers access to brands' public-facing statements, as well as users' interests and feedback, while allowing both parties to interact with one another in ways that are decidedly less formal than opening a support ticket or sending an email might otherwise be.

From this perspective, this study prioritizes the experiences of active participants present in the Discord communities of two different NFT games and, through qualitative textual analysis and application of the walkthrough method, attempts to discern from written comments, organizational messaging, and application features what users are intended to feel, as well as the actual feelings users experience with attention towards contextualizing factors that may consciously or subconsciously inform their perspectives and actions. Although there is a tendency towards behaviorism during observation (Csikszentmihalyi, 2014a), this work instead concerns itself with an exploration of the internal, emotional states that inform user engagement with NFT games, believing these subjective feelings to be a preferable measure of the condition of the individuals. This work is less concerned with what users do or will do next and instead considers the experiences, feelings, and beliefs that inform user actions and reflect contextualizing factors explored in the literature review that follows. Although gaming, gambling, and financial investment are likely to share similar motivations, they do exist as different topics of interest, necessitating the inquiry into users' feelings and motivations with attention towards the extent with which those feelings align with the expressed purposes of the applications central to this study. With this in mind, it must be stated that the expression of these internal states may not be available in ways beneficial to a more

exhaustive study of NFT user experiences, as users might prefer to keep the particulars of more sensitive or intimate feelings to themselves.

This work posits that the interests of capital (private property, accumulation, consumption, etc.) act as a form of external pressure or contextualizing factor that informs the actions of users of NFT games and applications. Analysis of these users' motivations, the expressed purposes of the two objects of study, and the objects' inherent characteristics build to a multifaceted view of feelings and process in the context of an increasingly complex, gamified, gamblified, and financialized media environment. While "Newly Minted" (Zaucha and Agur, 2022) considers user actions and their relationship to a set of themes similar to those central to this analysis (marketization, financialization, play, gaming, gambling, etc.) this thesis shifts its focus to the emotional experiences and beliefs of users' that motivate their actions. In an effort to further establish the theoretical foundations of this work previewed in this introduction, the literature review that follows begins first with a broad overview of emerging finance before delving into the particulars of NFTs.

Emerging Finance, NFTs, and Cryptocurrencies

The importance of a study of emerging finance is supported by the everyday embeddedness and ubiquity of financial infrastructures, as well as the political implications of these infrastructures (Westermeier, 2020). New financial innovations can improve access to financial services and credit opportunities regardless of an individual's socioeconomic status and could be said to have a democratizing effect in the financial world (Prasad, 2021). Counter to this optimistic potential, these same democratizing forces might be enjoyed disproportionately by those who are already wealthy due to

ongoing disparities in financial literacy and digital access (Prasad, 2021). When thinking

about what digital access entails, as well as the benefits one receives through their access,

consider the oft-mentioned "digital divide". Per Prasad (2021), technological innovation

has the potential to benefit competition and the broader financial system, but there is the

possibility that these innovations may present additional risks to the stability of the

financial system while further complicating the duties of regulatory authorities. These

remarks recognize the fast-paced nature of innovation, as well as lagging familiarity on

the part of regulators, and echo Strange's (1986) suggestion that financial and

technological innovations may move more quickly than regulators are able.

Two particularly salient technological innovations related to and beyond finance

are NFTs and cryptocurrencies, both of which are a product of blockchain technology.

Created by algorithms, NFTs are intangible (BBC News, 2021) assets that reflect inputs

logged to a blockchain (Kochkodin, 2021) and are, to many, a new model of ownership

(Barber, 2021) or means of verifying ownership (Kastrenakes, 2021). Cryptocurrencies

employ "strong cryptography to secure financial transactions, control the creation of

additional units, and verify the transfer of assets" Samanta et al., 2021, p.4). Both are of a

decentralized nature and are components of an evolving financial and media environment

defined by ambiguous value, ownership, and intention (Zaucha and Agur, 2022).

Although it may seem odd to consider NFTs assets as they often are associated with

digital images, prior investments in artworks exemplify a tendency for investors to look

for opportunities beyond the most conventional investment contexts, as they serve as a

means of diversifying one's portfolio (de Cordova, 2018) and can contribute to future

reinvestments (van der Grijp, 2018).

While currencies (both conventional currencies and cryptocurrencies) are fungible (meaning they are interchangeable) (Volpicelli, 2021), NFTs are not, with their value informed in part by artificial scarcity (Halfon, 2021). The topic of value is central to understanding NFTs. News articles have highlighted the absurd nature of the NFT market, with digital assets selling for less than a cent (Corrigan, 2022) and for millions of dollars (Hale, 2022). Graeber (2001) acknowledges that the term "value" can vary significantly in its meaning and that it is not always clear which understanding of "value" an author intends. Beyond this, Graeber provides two definitions of value: one sociological (what is good or desirable) and the other economic (relating to desire and measured by what one is willing to part with). Simmel (2004) suggests that value is, instead, a product of exchange. The NFT projects this study observes engage with multiple categories of value including entertainment, monetary, and aesthetic to name but a few. Findings detailed in my previous study of NFTs suggests that although NFT projects may be positioned as places for collecting, fun, and fandom, these expressed intentions may be superseded by financial interests and their associated strategic calculations, representing a commodification of fandom, increased pressure towards financialized thinking, and lessened emphasis on value propositions related to artistry or emotional engagement (Zaucha and Agur, 2022). Additionally, this work speculates on the potential benefits of engagement with NFT projects and their associated communities, highlighting things such as community, solidarity, financial reward, skill mastery, demonstration of investment ability, identity expression, and the potential to engage in joyful consumption through collecting (Zaucha and Agur, 2022). As the previous study relates to a platform that is only game-like, this work's interest in more representative

gaming experiences presents the opportunity to further investigate the ability for contextualizing financial factors to be prioritized over the intended gaming or gambling experience (Zaucha and Agur, 2022).

While NFTs are assets, cryptocurrencies are another form of money as they are a medium of exchange, a store of value, and a means of measuring value (Arjaliès, 2021). Lee, Parlour, and Rajan (2021) add to these descriptions of cryptocurrencies, suggesting that they are a type of investment prone to speculation. Cryptocurrencies blur the lines between asset and currency in ways reminiscent of activity taking place in the Foreign Exchange Market. Consistent with Brown and Lin's (2021) views on the viability of cryptocurrencies, the hyperbolic and speculative nature of NFT markets captures the attention of news media and readers while casting doubt on their stability and utility. Arjaliès (2021) asserts that alternative currencies (such as cryptocurrencies) have a transformative effect on the global financial system, garnering much scrutiny from government and industry in the process. Opposition to digital currencies is often born of the concern that their proliferation will shift control of monetary policy from public authorities to private companies and individuals. In some ways, these assets might be likened to "inside money" which originates in the private sector, acts as a medium of exchange (Prasad, 2021), and indicates that a creation of value does not rest solely with governments. Jagtiani et al. (2021) maintains that despite these concerns current levels of digital currency adoption are minimally impactful, with the caveat that sizable increases in the use of digital currencies could change this. Arjaliès (2021) summarizes a view of alternative currencies held by sociologists of money, detailing a view of Bitcoin and other cryptocurrencies as a form of "techno-utopia" (Dodd, 2014, p. 42) that exists as an

alternative monetary system and reflects the belief that conventional systems are "full of political hubris, financial ineptitude and underlying criminality." (Arjaliès, 2021, p. 127) As governments exclusively determine what currencies they will accept for tax payments, alternatives to these determinations (in this case digital currencies) are viewed by sociologists of money as being a form of resistance of those governments (Cohen, 2004; Knapp, 1924).

Although the highly technical nature of cryptocurrencies and their relevance to this discussion suggests that proposed decentralized systems and their associated currencies are a new phenomenon, Cawrey (2014) communicates that the possibility of different forms of payment has long related to a belief that their emergence would contribute to reduced governmental intervention (Brown and Lin, 2021). Digital currencies, as well as other emerging financial solutions, threaten the control of conventional public and private financial institutions and pose a difficult challenge to regulatory entities, who might then struggle to act in their intended, protective capacity (Prasad, 2021) or are less able to foster economic activity while attending to a potential to introduce additional instability. While fiat money draws its authority and value from its relationship to, and public trust in, government (Prasad, 2021), alternative currencies are similarly dependent upon beliefs that they will be accepted as a medium of exchange by others (Smith & Kumar, 2018) but do not derive trust from the credibility of centralized institutions. To this end, interest in cryptocurrencies is, in part, informed by distrust of central banks and governments related to the global financial crisis of the late 2000s (Prasad, 2021). Additionally, Rabouin (2021) suggests that distrust in established institutions has contributed to growing interest and adoption of NFTs.

The perceived value of NFTs varies, with outsiders puzzled by the sizable figures digital assets have sold for, and insiders bullish about the potential for NFTs to bring financial gain. Differing opinions as to the value of NFTs are influenced by perceptions of criminality surrounding blockchain technology and cryptocurrencies, which relate closely to NFTs. These perceptions are informed by anonymity's role in blockchain technology (Clark et al., 2021), concerns of instability exemplified by comments from U.S. Federal Reserve Chair Janet Yellen (Melloy, 2017), assertions of fraudulent or abusive activity in cryptocurrency markets stated by U.S. Securities and Exchange Commission Chair Gary Gensler (The Economist, 2021), considerations of cryptocurrencies' potential to negatively impact investors (Prasad, 2021), and studies documenting price manipulation occurring in cryptocurrency markets (Griffin and Shams, 2020; Gandal et al., 2018). Skepticism connected to the possibility of fraud, abuse, or manipulation in NFT and cryptocurrency markets is common, as emerging financial innovations have, at times, served as vehicles for fraud (Prasad, 2021).

At a glance, negative qualities such as abuse, fraud, and scams in the form of "rug pulls", instances in which scammers raise the value of an asset before making off with investors' money (PCMag, 2022), provide ample support for regulatory intervention into NFTs and cryptocurrencies. These NFTs exist in a platform environment which, much like other financial solutions or intermediaries, may also be in need of regulatory intervention (Zetzche et al., 2018; Westermeier, 2020). This work presupposes that similarities between gambling and finance—similarities apparent in NFT markets and platforms—are equally in need of regulatory action and reflect a continued cultural shift towards risk-taking. This view is supported by the work of Albarrán-Torres (2018), who

suggests that gambling and finance can both be pursued in an effort to alleviate current

socio-political hardships. Similarly, Cosgrave (2022) links gambling and speculation to

"the earliest days of capitalism" (p. 20) and views gambling and financial markets as

venues for speculation, a product of continued financialization, and a driving factor in the

financial crisis of the late 2000s, which garnered charges of casino capitalism (de Goede,

2005; Preda, 2009; Stäheli, 2013; Strange, 1986). Goggin (2022) explores the close

relationship between card games, finance, and speculation, bringing into focus the ludic

qualities of economic systems. Reith (1999) draws similar comparisons between

speculation and risk in economic and gambling contexts. Ultimately, emerging financial

systems reminiscent of games or casinos suggest an ongoing playfulness and complexity

present in economic contexts and contribute to an increasingly ambiguous view of

capitalism (Giddings & Harvey, 2018).

The character of emerging finance is informed in part by the varied experience of

its participants, whose access is made possible by technological innovations. Of greatest

interest to this work is the potential for increased volatility, which Prasad (2021) notes is

exacerbated by a combination of low cost-of-entry and easier accessibility. In the case of

less-experienced investors, Barber and Odean (2001) found that direct interaction with

markets held the possibility of "an exaggerated sense of control over the outcome of their

trades" (p. 42). Additionally, Balasubramanian, Konana and Menon (1999) found a

feeling of empowerment to be common among online traders. These interactions might

be informed by sources of information that vary in quality (online social interactions,

online publications, the convenience of search engines, etc.) (Barber and Odean, 2001)

and are likely present in the communities this work observes. As new NFT projects and

platforms may provide varying levels of detail as to their roadmaps and long-term vision, potential purchasers or investors may struggle to assess potential risks to their investments (Prasad, 2021). These findings amount to an investment context wherein individuals are likely to feel as though they have more information, ability, and control over the outcomes than they actually do (Barber & Odean, 2002), with this overconfidence fostering increased risk-taking, and the potential for investors to endure financial losses as a result of a meeting of overconfidence and ambiguous financial and technical systems. Barber & Odean (2002) summarize the conditions for speculative bubbles, which include uncertainty about the current and future value of assets, the presence and activity of inexperienced investors, the ease of access to money, and the possession of more money relative to assets' values (Smith, Suchanek and Williams, 1988; Caginalp, Porter and Smith, 2000), which collectively pose risks to market stability. These issues are further exacerbated by an ability for mechanics present in gambling and digital games to contribute to the perception that a user possess greater control over the outcomes than is actually the case (King, Ejova & Delfabbro, 2012) while, at the very same time, users may experience impaired control due to a lack of scrutiny when playing games in a private context, as well as the accessibility of requisite funds and the ubiquity of gaming and gambling opportunities (Hing et al., 2015).

Echoing Barber and Odean (2001), this environment invites consideration of how decision-makers navigate these varied feelings, complexities, and uncertainties in an environment defined by overlapping contextualizing factors. Ultimately, these contextualizing factors vary in their seriousness and contribute to further cultural commodification and the entrenchment of marketized and financialized thinking.

Commodification, Markets, and Financialization

In the context of objects of study Axie Infinity and ZED Run, in-game digital items common to gameplay experiences transcend their relevance to their associated games and become tradeable commodities, representing a further commodification of digital and cultural properties. Broadly, commodification entails a process wherein nonmarket goods become market goods and can function in ways consistent with marketplace demands (Roy Chaudhuri & Belk, 2020; Beer, 2016). At a high level, video games are a product of art, design, and programming, and have long been made available to consumers through market interactions. Phillips (2015, p.66) describes a dichotomous view of games as art, wherein gameplay is celebrated and an "ongoing communicative relationship between producer and player" occurs, and games as a business, where monetization is prioritized and "developers are thought of as unscrupulous and players are consumers to be milked for cash." As games have long existed as products in a marketplace, there is nothing novel in the suggestion that video games are a product of commodification. As creative endeavors and entertainment media, it is understandable that video games would be bought and sold through conventional marketplaces. However, Axie Infinity and ZED Run represent a tension between art and business while further commodifying the minutia of video games. Ultimately, it is the unique form of monetization, one connected to a world of emerging finance, that necessitates a study of these objects.

Consistent with the suggestion that a commodification of games is nothing new, Roy Chaudhuri & Belk (2020, p.31) establish commodification's historical precedent,

listing many objects of commodification and illustrating the extent to which any and all things might be commodified:

> Thus, according to many analyses, we have experienced at various times and places, the commodification of people (e.g., slavery, human trafficking, surrogate motherhood), love, sex, religion, body parts, cadavers, art, music, education, rides, childcare, eldercare, health care, the internet, police, soldiers, museums, parks, beaches, prisons, and many other formerly free, public, shared, or intimate interpersonal objects and services

Rifkin (2000) views this commodification of everything as a feature of neoliberal culture, with Gilbert (2008, p. 562) criticizing neoliberalism's "violent imposition of the buyer/seller paradigm onto every possible set of social relationships", with some believing those relationships to be corrupted in the process (Zelizer, 2011). In this way, commodification limits the possibilities of what one's ideas, innovations, and artworks might become.

As commodification exists as a feature of neoliberal culture and becomes increasingly prevalent, so too does the presence of words such as 'market" and 'exchange' in daily interactions (Roy Chaudhuri & Belk, 2020). Where once games served the purpose of entertaining players, they may now relate to an ability to engage with markets. With this interest in market interaction in mind, Fligstein and Dauter's (2007) engagement with a sociology of markets provides the suggestion that market actors develop social structures in order to solve market-specific problems. In their efforts to succeed, users may employ market thinking to the detriment of strategies related to gameplay or social interaction, reflecting a portion of Zaucha and Agur's

(2022) previous findings on NFT markets, wherein artistry, fandom, and emotion are deemphasized in favor of pragmatic, strategic, or calculative thinking.

As a study of communities and markets, this work concerns itself with persistent marketization occurring in daily life. Roy Chaudhuri & Belk (2020, p. 21) define marketization as "the increasing ordering of culture and society according to the ideology, goals, and principles of the modern market" and relate these increases to the growth of corporate power across the globe. Roy Chaudhuri & Belk (2020) emphasize that consumer culture is a societal phenomenon wherein market consumption is prioritized. This consumption is cloaked in language that depicts markets, thought to have powerful social effects, as beneficial to a moral society (Fourcade and Healy, 2007), with McCloskey (2006) arguing that markets cultivate integrity, honesty, and responsibility. Critics suggest that markets reduce justifications to narrow forms of self-interest (Fourcade and Healy, 2007) and render largely dehumanizing effects on individuals (Polanyi, 2001). This tension is present in Zelizer's (2011) discussion of "separate spheres" and "hostile worlds". The concept of separate spheres segments social life into two dichotomous spheres: one for rationality and efficiency, and another for solidarity and sentiment. In contrast, Zelizer summarizes the concept of hostile worlds as a belief where separate spheres become contaminated following their intersection—a mixing of work and pleasure, for instance. Sentiment fosters inefficiency and favoritism, and efforts toward efficiency make for disingenuous sentiment. To this end, emotional objections to a melding of gaming, gambling, and finance are consistent with prior literature wherein authenticity and intimacy are thought to be eroded by the increased prevalence of markets. Despite this commonplace view, Zelizer furthers a contrasting view wherein

marketized interactions work to sustain family and nonfamily relationships, acknowledging that the perfectly controlled, isolated environments proposed by separate spheres thinking do not exist in the ways they are imagined.

Increased efforts towards commodification and the impacts of markets are joined by continued financialization, wherein markets exist solely for the purpose of making money (Aalbers, 2008), and where life is lived in businesslike fashion (Martin, 2002), replete with efforts towards efficiency and continued consumption. Martin (2002) depicts day trading as an ideal example for the financialization of daily life, emphasizing the ability for individuals in search of wealth to transcend institutions through the use of mediated platforms. Martin highlights a merging of work and leisure taking place online, considering this intersection an ideal venue for financialization. Martin further acknowledges a search for solidarity that occurs within day trading communities wherein participants share their successes and failures with one another, something that is mirrored in Zaucha and Agur's (2022) work on NFTs, and supportive of Zelizer's (2011) suggestion that a blurring of worlds thought to be hostile can be socially beneficial. Additionally, fervor surrounding NFTs, the size of their associated valuations, and the frequency with which seemingly inexperienced investors engage in their established markets suggest similarities between day trading and NFT purchasing and serve as further evidence to the perspective that NFTs are but another form of financialization facilitated by mediated communications technologies, occurring in platform environments, and taking place in daily life.

Platformization

As a central thematic interest of this work, platformization is defined by Nieborg and Poell (2018, p. 4,276) as "the penetration of economic, governmental, and infrastructural extensions of digital platforms into the web and app ecosystems", with the authors noting that studies of platformization have typically related to business (often for-profit companies acting as intermediaries), political economy, and software. As user NFT purchases are leveraged on Axie Infinity's and ZED Run's respective gaming platforms or applications, it is beneficial to situate the objects of study themselves within platform scholarship. Applied to a discussion of NFTs, Srnick's (2017) view of platforms, summarized by Woodcock (2019, p. 52), connects the social and technical characteristics of both objects of study to a broader discussion of platformization:

> As Nick Srnicek argues, platforms "position themselves as intermediaries that bring together different users … and more often than not, these platforms also come with a series of tools that enable their users to build their own products, services, and marketplaces."

The relevance of games to a study of platforms is made possible by the controlled nature of the two and the role of commercial ownership applied towards the organization of software-specific activity (Plantin et al., 2018; Light, Burgess & Duguay, 2018). Additionally, the user messages that inform the textual analysis portion of this work are gathered from communities specific to Axie Infinity and ZED Run that are hosted on the Discord platform. Per Benkler (2006) platforms further a "project of control" wherein cultural production is centralized and limited to the domain of commercial or corporate interests (Nieborg and Poell, 2018). Similarly, Pfaffenberger (1992) notes that "technologies serve the cultural aspiration of their creators, who often accrue power by

oppressing particular groups" (Light, Burgess, & Duguay, 2018, p. 887), with these technologies employed in the interest of said aspirations. Perspectives from Benkler and Pfaffenberger lend themselves to platform analysis related to the political economy of new media.

Conceptually, corporate and consumer descriptions of platforms are of an elusive nature, with the term employed in the interests of audience perception (oftentimes idealized marketing language) or to intimate the technical nature of a platform (Gillespie, 2010). Further, Gillespie (2010, 2017) details the tendency for platform language to obfuscate. Obfuscation of a platform's uses allows organizations to establish the boundaries of what should and should not be considered, by regulators, to be their responsibility (Gillespie, 2010). Similarly, platforms are also able to set audience expectations through similar discursive practices. This activity renders political and discursive impacts (Gillespie, 2017; Sterne, 2003) that allow organizations to prioritize a pursuit of current and future profit and aids in the establishment of "a cultural imaginary within which their services make sense" (Gillespie, 2010, Wyatt, 2004). These efforts reflect a drive to position one's organization or product in ways that best fit a current situation, opportunity, or audience (Gieryn, 1999) and are difficult to address, as Gillespie (2010) describes an ability for platform language to emphasize neutrality and openness in purposefully imprecise ways. In the case of financial infrastructures discussed in this study, the platform model would suggest that emerging financial innovations seek to build upon what currently exists (Westermeier, 2020), as opposed to replacing existing infrastructure (Brown and Lin, 2021, Cawrey, 2014). Although Axie

Infinity and ZED Run are discussed here as platforms, it is important to acknowledge the role of play in these designed, gaming experiences.

Play

Scholarly work on the topic of play often elevates play from an emotive engagement to something that captures uniquely human qualities. Sicart (2014) considers play to be an activity, but contrasts this view with a description of playfulness—an attitude one adopts—that allows for the application of play to contexts in which play may at first seem inappropriate or peculiar. Per Sicart, play is a mode through which one interacts with the world and its inhabitants, and a space for creative and destructive experiences. In more profound terms, Sartre (1988) likens one's desire to engage in play to a base-level desire *to be*. Play is often discussed in grand, idealistic language, but there are dangers to play (Sicart, 2014) that can include addictive consumption or, in the case of gambling games, be a detriment to one's financial wellbeing. Juul (2013) speaks of risks associated with play, emphasizing the intangibility of these risks and communicating the potential for individuals to engage in 'emotional gambles' wherein the play activity requires an investment of time and self-esteem (Juul, 2013; Johnson, 2018).

With its own goals, purposes, and spaces (Henricks, 2006; Sicart, 2014) play, a largely unproductive activity, clashes with the values and expectations of capitalism (Woodcock, 2019). Caillois (2001, p. 16) relays many of the tensions between capitalism and play:

nothing has been harvested or manufactured, no masterpiece has been created, no capital has accrued. Play is an occasion of pure waste: waste of time, energy, ingenuity, skill, and often money for the purchase of gambling equipment or eventually to pay for the establishment.

Sicart (2014) provides a more structural definition, one that better highlights the benefits of play, as well as the nature of play experiences. Play, per Sicart, is contextual, carnivalesque, appropriative, disruptive, autotelic, creative, and personal. The contextual aspects of play relate to the environment where play occurs, the objects relevant to the play experience, and the people who are engaged in the activity. Sicart views computers as an ideal context for play due in part to the designed nature of software experiences, and the ways that technology is able to enforce the associated rules of a given play experience. The description of play as "carnivalesque" is derived from the observation that play is a constant balancing act between creative and destructive processes. The "appropriative" nature of play allows it to take over the context in which it occurs. A view of play as "disruptive" encompasses its ability to upend current proceedings, as well as its potential to cause imbalance through addiction driven by impulse and calculation (Schüll, 2012). A view of play as "autotelic" relates to the parameters of play, as play entails its own goals, purposes, rules, spaces, and durations (Henricks, 2006; Sicart 2014). Play's "creative" characteristics include its ability to foster expression and its existence as a product of "objects, rules, players, situations, and spaces" (Sicart, 2014, p. 17). Finally, play is personal in its ability to engage with one's sentiments, morals, and politics, and is uniquely capable of reflecting who we are.

Although the ambitions and positives of play and playful thinking suggest that play can only be to the benefit of the individual, there exist instances wherein play has the capacity to cause great harm. As detailed in Schüll's (2012) *Addiction by Design*, and reinforced by Sicart (2014), computer-mediated opportunities have the potential, through their designs, to foster addictive consumption. Schechner (1988) builds upon the potential negatives of play experiences with the topic of "dark play", a phenomenon exemplified by undercover actions that seek disruption and deceit through a dissolution of the boundaries of play. Schechner (1988) further emphasizes the need for players to feel as though they are safe, but recognizes the appeal of greater risks. Taken together, the objects of study central to this work risk the addictive consumption of their users through designs and feedback loops that confer emotional benefits through play while tethering the possibility of success and the positive affects it brings with the expenditure of external funds. Additionally, the deceptive nature of the applications' designs raises the question of how a gaming context defined by different purposes (entertainment or financial reward) eludes a player's understanding of what designs and intentions they are engaged with. With this in mind, the following section reviews literature relating to designed systems with particular attention towards systems intended for play and the role of "flow" in the play experience.

Design and Flow

As digital games, Axie Infinity and ZED Run are both products of design thinking, with the specifics of their respective gameplay environments further complicated by the technical and economic characteristics of NFTs. With this in mind, the role of user experience design is vital to the successful navigation of increasingly

complex gaming environments, as clear communication of how a game is interacted with, what a player should do in order to interact, and when the player is meant to interact, is essential to the game's success (Carman, 2018). Discussion of design is pursued with an interest in articulating the designed nature of these gaming experiences with the acknowledgement that these designs reflect the intentions and aspirations of their creators (Light, Burgess, & Duguay, 2018) and those who fund their creation. The present moment is defined by emotional designs, with these designs indicating an intention to appeal to one's senses and feelings (Sicart, 2014; Huizinga, 1992; Sutton-Smith, 1997; DeKoven, 2002; Caillois, 2001; Suits, 2005).

From a definitional standpoint, design is a creative endeavor that seeks to afford utility (Sicart, 2014) to users. Consistent with popular thinking in user experience design, Sicart (2014) notes a need for designers to understand people, their feelings, and their interactions with designed objects. Mobile applications serve as an example of the ubiquity of designed experiences, with communications technologies present in the applications ecosystem offering utility to end-users. Sicart (2014) suggests that through design, these technologies may at times appear as something different than what they are, going so far as to describe them as ambiguous and in need of user input, with this suggestion reflected in Albarrán-Torres' (2018) discussion of gamble-play media. Users are likely to experience their inputs through gameplay loops that provide positive reinforcement. However, the danger in these positive reinforcements rests in the ability for predatory monetization practices to prioritize current player engagement over the long-term success of the game (Alha et al., 2014), as well as the wellbeing of the player (Ramirez, 2015).

This study takes particular interest in the role of flow, believing it to be an essential component of ongoing gameplay, with an extension of this level of involvement lending itself to increased financial expenditure (Shibuya et al., 2019). Conditions for flow include the ability for an object to channel a user's attention, the balancing act of demand and ability referred to here as "optimal arousal" (Berlyne 1960; Hunt 1965; Csikszentmihalyi, 2014a), and finally the allure of immediate feedback a user receives when navigating demands presented by a task or space that is in flux. The concept of flow might be likened to 'the zone' in gambling or the 'bliss point' when discussing one's experiences with food (Reith, 2018). Consistent with flow's role in gameplay, involvement with a given activity or game might be extended through the modulation of cognitive factors that contribute to excessive user engagement (Rémond & Romo 2018; Schüll, 2005). Csikszentmihalyi (2014a), outlines the qualities of enjoyable activities, which include an ability to concentrate on limited stimuli, in contexts where certain skills must be applied towards certain objectives. These activities afford the individual distance from ongoing problems external to the play experience and even the constraints of one's identity. Additionally, these controlled experiences allow the individual to transcend internal, mental constraints and contribute to the perception that one has greater control over outcomes.

These qualities, as Csikszentmihalyi asserts, are characteristic of flow experiences, which allow an individual to become wholly absorbed by a given activity, ignoring outside demands or circumstances in the process. In a flow state, individuals find themselves aware of their actions—they know what they are doing and are in control—but are still able to maintain some distance from that awareness. They see and

understand their actions but do not attend to this awareness in a focused way. These qualities of flow experiences can be summarized as "the merging of action and awareness, a sense of control, and an altered sense of time" (Csikszentmihalyi, 2014a, p. 230) Consistent with the previous discussion of positive reinforcement and gameplay loops, the flow model suggests that flow contributes to skill development by inviting repeat engagement with a given activity (Nakamura & Csikszentmihalyi, 2014). Flow experiences involve user navigation of predictable and unpredictable stimuli. With this in mind, the following section addresses the role of unpredictability with particular interest in articulating the ways in which individuals might navigate unpredictable circumstances experienced in daily life, as well as in the kind of digital game this work examines.

Navigating Unpredictability

An investigation of the role of unpredictability is pursued in large part due to the varied qualities of the chosen objects of study, which represent an intersection of gaming, gambling, and finance, with each of these contextualizing factors experienced by users, players, and investors as being more or less predictable than they may actually be. The working definition of unpredictability employed in this study is taken from Johnson's (2018) work, and is as follows:

> Let us consequently define 'unpredictability' as descriptive of the category of game action which can yield multiple outcomes for identical inputs, and that the 'selected' outcome from the possibility space of potential outcomes cannot be foreseen." (Johnson, 2018, p. 2)

Put simply, this work views unpredictability as the potential for identical or near-identical actions to render various different outcomes when realized through the probabilistically determined systems present in the broader video game space and, specifically, in the NFT games central to this study. In connection with the topic of unpredictability, Taleb (2005, p. 12) describes probability as "the acceptance of the lack of certainty in our knowledge and the development of methods for dealing with our ignorance". Taleb (2005, p. 51) believes that human beings are "not wired in a way to understand probability". These remarks relate closely to research questions 2 and 3, and foreshadow a potential for users to struggle to navigate the complex and probabilistically determined NFT games:

> *RQ2*. What is the user experience for Axie Infinity and ZED Run like in practice based on user messages, application features or text, and registration processes?

> *RQ3*. How do users navigate tensions between entertainment opportunities occurring in a platform environment and NFTs' financial considerations occurring in and beyond the gameplay environment?

As this study is most interested in the feelings and experiences of users, it is with an acknowledgment of the role and potential impacts of uncertainty or unpredictability that these questions are pursued. In order to best situate the topic of unpredictability, this work considers the topic in general terms, along with closely related topics such as randomness, chance, luck, and skill, which are component parts of a "four-part typology of game unpredictability" (Johnson, 2018, p. 9). According to Johnson the term "randomness" relates to the unpredictability of a game's starting conditions. Taleb (2005) suggests that preoccupation with randomness can carry heavy emotional tolls, while Strange (1986) provides similar commentary on the ability for luck, a characteristic

increasingly applied to contexts in need of greater stability and predictability, to impart psychological consequences.

Johnson's working definition of chance refers to unpredictability that occurs during play. The concept of luck is defined as an assessment of the role of unpredictability following the completion of a given game or sequence. Johnson notes that the concept of luck considers the potential for players to influence or not influence the outcomes of the game or event. When discussing luck, Johnson acknowledges the role of choice present in digital games, and details a tendency for games to employ systems that suggest some level of fairness and provide some sense of how likely the player is to succeed in their efforts. In games of complete luck, such as betting on a coin toss, players lack control over the outcome. As a result, luck is thought to provide all players equal opportunities towards success. Johnson (2018) highlights Reith's (1999, p. 94) view of games of chance and the luck associated with them, with Reith suggesting that such games possess unique appeals. Further, Reith emphasizes the democratizing character of these games:

> Part of the "unique appeal" of games of chance is their absolute democracy. Just as it abolishes the efficacy of skill, so chance abolishes inherited or acquired difference, as well as those based on merit, patience, hard work or education.

Johnson also includes Bennett's (2009, p. 27) contrasting remarks, which take a far more negative stance, viewing the mechanics of games of chance as a means of "removing will, skill, and intelligence from their play and serious decision-making". A coin toss, a game of complete luck, would be thought to lack skill due to the limited (or entirely absent) influence of the player. The less the outcome of a game depends on luck or other

systems beyond a player's control or influence, the greater the role of skill is thought to be in determining the outcome of the game. To this end, the concept of skill entails an ability for players to influence a game despite the unpredictability of the game's various elements. Bennett's remarks related to will, skill, and intelligence are echoed by Caillois (2001) who considers the player's role in games of chance to be a passive one, as well as one that lessens the importance of effort and experience. However, it is important to acknowledge that a mixing of chance and skill has been present in gaming contexts for some time now (Schwartz, 2022). An aversion to luck can be contrasted with Johnson's acknowledgment of a particularly neoliberal ethos wherein individualism, hard work, and ability are valued, and where individuals are thought to have more control over the outcomes that affect them than they may in practice. Ultimately, Johnson's four-part typology of game unpredictability builds towards "an understanding of the game-playing subject when confronted with unpredictable games" (Johnson, 2018, p. 20-21), with this understanding being foundational to this work's exploration of the experiences of the players of NFT games.

Unpredictability is a central component of daily life. Malaby (2003) examines a close relationship between the two, noting that the features of gambling games are not unlike those many aspects of unpredictability individuals encounter in the world. In gambling games and in life, Malaby furthers the notion that individuals employ ideas and strategies in an effort to navigate the unpredictability they may face, with the author noting that these instances of unpredictability are not wholly negative and can afford individuals social, personal, and financial benefits (Malaby, 2003; Johnson, 2018). Johnson describes an inability to predict the outcomes of one's inputs as important to a

study of gameplay experiences, noting that the study of an unpredictable experience "problematizes a wide constellation of related elements: the triviality or seriousness of play, player agency, notions of fairness, having something 'at stake' in play, the role (if any) of skill and many more…" (Johnson, 2018, p. 1-2). The cognitive factors discussed here reflect myriad cognitive complexities of NFT games, where users navigate the appeals of play alongside the challenge of unpredictability.

General familiarity with NFT projects often relates to the considerable monetary value of some NFTs. The success that can be had through engagement with NFT markets and games is dependent upon the processing of information that is available to users. Taleb (2005) describes a tendency for individuals to attend to information that is easily accessible and to ignore information that they may not see, or may not be immediately apparent. Taleb considers the salience associated with the survivorship bias, acknowledging that high performers tend to gain greater visibility and, as a result, suggest to individuals a greater likelihood of success than may actually be the case. This potential for risk is evaluated both cognitively (in ways defined by probabilities) and emotionally, with these two forms of evaluation being interrelated (Lowenstein et al., 2001; Zajonc, 1980). To this end, Zajonc (1980) argues that all perceptions are informed by affect (Zajonc, 1980; Finucane et al., 2000). If the appeal of play-to-earn gaming is of greater interest to the players of NFT games, this suggests that those who are attending most closely to the idea of NFTs as a potentially lucrative investment are aware of and perhaps drawn to the success of others in the NFT spaces, suggesting a likelihood that cognitive biases such as the survivorship bias may be at play here, as users are invited to partake in the day's play in ways that may be riskier than they believe.

Additionally, Alhakami and Slovic's (1994) finding that one's present feelings contributes to a view of risk and benefit as inversely related suggests that activities an individual considers favorable bring considerable benefits with low risks, while unfavorable activities bring fewer benefits in the face of greater risks; while Isen & Patrick (1983) note that decision-makers experiencing some sort of positive affect are more optimistic that their desired outcome will occur. However, Isen, Nygren, & Ashby (1988) add that happy individuals may seek to maintain their mood and will instead avoid engaging in activities such as gambling where the outcomes may do otherwise. With this in mind, it is worth considering how an individual might behave if their positive mood is derived both from the act of play (facilitated by the game) and by the financial ramifications of the game's outcome. Looking at survivorship bias, the importance of affect, and an interest in mood maintenance, individuals believing unrepresentative outcomes to be representative, all the while engaging in the joyful act of play (as is the case in both NFT games observed in this study), encounter cognitive biases that allow them to enter into play or investment contexts with varying underestimations as to the potential risks.

In the context of unpredictability, cognitive biases and quirks abound. Among these is an illusion of control wherein individuals believe they hold greater influence over the outcome of chance events than they do in practice (Langer, 1975; Langer and Roth, 1975; Barber and Odean, 2001). Barber and Odean (2001, p. 47-48) suggest that this illusion of control occurs "when factors ordinarily associated with improved performance in skilled situations—such as choice, task familiarity, competition, and active involvement—are present in situations at least partly governed by chance", and may

consequently cause individuals to feel greater control over their actions while disregarding their lack of control over those actions' associated outcomes. Schüll (2012) notes that computer-mediated systems (in the author's example, slot machines) may be designed in ways to accentuate an illusion of control by offering users the chance to influence the procession of events even if that influence may hold no bearing on the outcomes that follow. Similarly, Gilovich, Vallone, and Tversky's (1985) exploration of the "hot hand" in basketball finds that people's understanding of randomness often eschews the probabilities associated with chance encounters, with individuals believing that the outcome of one event has some bearing on the event that follows e.g., that a sequence of successful 3-point shots increases the likelihood that the shot that follows will, again, be successful. The gambler's fallacy, described as a "misconception of the fairness of the laws of chance" (Tversky & Kahneman, 1971, p. 106) is similarly relevant here, as individuals may believe that randomness must be representative, and that one deviation should be cancelled out by another (if a coin has landed on heads four times in a row, the presumed fairness of the coin's potential outcomes should result in tails).

Probabilistically determined games or engagements are prone to cognitive biases and failings beyond those discussed here, with these examples intended to illustrate how complex the current gaming and gambling environment is due to the interplay of designed systems and cognitive processes. In many games, probability serves as an influential component or feature. In efforts to find gameplay success, users may replay a particular game or outcome in an effort to better understand the designed systems (and the inherent unpredictability of those designed systems) that they are interacting with. The following section explores the development of system knowledge, with attention

towards the concept of replay value. This is done with the understanding that system knowledge informs future interactions with the designed systems central to this study.

System Knowledge and Unpredictability in Digital Games

Although it is common for digital games to lack overt objectives, function as virtual play spaces, or deemphasize competition, the ends of gambling games and gamble-play media position outcomes and rewards systems as drivers of interaction. In the case of play-to-earn games, some users may simply wish to partake in the gameplay experience, but must engage with prerequisite marketplace systems. Given the financial nature of each game's associated NFTs, their incorporation of play-to-earn gameplay mechanics, their focus on monetary outcomes, and required engagement with external marketplace systems, entry into Axie Infinity and ZED Run's gaming environments is predicated upon competition. Although analysis of each gaming community is likely to feature instances of support and collaboration, the core gameplay requirements and experiences do require competition. As a result, it is understandable that the development of one's knowledge of the gameplay environment, as well as knowledge of the mechanics of the games' external marketplaces, would be at a premium. Although good fortune is certain to be a determining factor, users looking to mitigate unpredictability inherent in each game are likely to do so through the acquisition of gameplay knowledge. With this in mind, this section engages extensively with Johnson's (2018) *The Unpredictability of Gameplay* in its efforts to elucidate the processes through which players acquire gameplay knowledge.

Johnson (2018, p. 60) highlights four factors related to knowledge acquisition in the context of variables and systems present in gameplay: the distribution of variables,

the extent of the system, observation of changes in elements, and systemic biases and preferences. The distribution of variables questions how a system distributes variables (unpredictable elements of gameplay) with interest in which variables appear, and why they appear. The extent of the system relates to changes in the gameplay environment, as well as the extent with which those changes determine the outcome of the gameplay experience. Through observation, players can develop an understanding of the relationships between different variables and systems with attention towards ongoing changes and interactions. Johnson's interest in "systemic biases and preferences" questions the frequency with which different variables appear, as well as similarities in the outcomes that specific systems produce. However, not all variables and systems are equally complex, and those of a greater complexity are more difficult to comprehend. Additionally, Johnson (2018, p. 60) provides three other contextualizing factors beneficial to a discussion of unpredictability present in gameplay systems:

> renewable or non-renewable nature of differential elements in their distribution by generative systems, the kinds of patterns that will develop in a player's Idea of a game's generative system, and also the level of confidence (touched upon above) players can have in their assessments of both variables and systems

Although these do not relate entirely to knowledge acquisition, these three factors contribute to this work's understanding of the player experiences with unpredictable systems present in gameplay. Beyond the variables and systems are the experiences of the players. Johnson (2018, p.61) views these experiences through the lens of systemic appraisals ("how, where, and when variables are distributed") and commutable patterns (commonalities between variables). Regardless of the appraisal, Johnson finds that player

knowledge is largely a product of observation of generative systems (systems that produce a particular outcome or result, often unpredictably).

Efforts to better understand gameplay systems may be achieved by playing a game or segment of a game more than once, with the value assigned to this experience described as "replay value" (Johnson, 2018, p. 169-170). Through replay, a process containing varying degrees of repetition, players can apply their efforts towards an improved understanding of differences present in the games. This is slightly different from the topic of grinding, which is a process wherein a player, anticipating a particular outcome (Mäyrä, 2008), performs similar actions or tasks until they have reached the desired outcome (King & Delfabbro, 2009). While replay may be informed by a desire to better understand the variables and systems a player is exposed to, it is possible that a player, having better understood how these variables and systems function, may continue to replay or "grind" in an effort to generate productive outcomes through repetitive play.

Johnson (2018, p. 63) summarizes this review of unpredictability and knowledge acquisition in the following way:

> In conclusion: all processes of learning and synthesizing unpredictable experiences into a model (multiplicity) of randomness systems (or other unpredictable systems) are contingent on coming to understand the generative system lying behind an unpredictable game, which repeats with each new playthrough and distributes differential elements according to (normally) profoundly opaque rationales.

Although this may not indicate the mental or emotional experiences of game players, the approach detailed here provides for a structured view of gameplay unpredictability. Given their existence as games, it is likely that players of Axie Infinity and ZED Run engage in similar behavior when encountering unpredictable systems, as doing so is advantageous to their in-game success as well as an accumulation of funds made possible by play-to-earn games. As this work relates to two gaming experiences, the following section provides an essential and foundational understanding of games, emphasizing player purposes.

Gameplay and Gamification

Today's media environment is increasingly facilitated by digital technologies. Despite existing for some time now, the interactive capabilities of video games serve as a sort of precursor to the various mass-market, interactive, and digital experiences one might experience on a mobile phone or laptop. Additionally, variability in the genres, forms, and functions of games makes for a complex and multifaceted environment through which to explore user experiences. Compared to other media, video games are made unique by the presence of play. Although Sicart's (2014) writing on the topic of play and, by extension, playfulness, acknowledges the potential for any and all things to be the subject of one's play, the explicit purpose of many games is to play and interact. However, play-to-earn games question the centrality of play to one's experiences with video games and consider how one might instead enrich themselves through interaction with gameplay experiences.

As an essential component, the characteristics of play as described by Sicart (2014) can be applied to a discussion of video games. In addition to these characteristics,

Sherry et al. (2006) specifies six dominant dimensions of video game use, which include arousal (an ability to bring about emotion), challenge (a meeting of skill and accomplishment), competition (an environment wherein ability or dominance might be displayed), diversion (providing an ability to forego stress or other external pressures), fantasy (equipping players with the ability to act in ways they might not otherwise be able to) and social interaction (providing a venue through which players can socialize). Koo's (2009) exploration of gameplay motivations arrives at similar conclusions, suggesting that factors such as escape, enjoyment, and the presence of social relationships can serve as motivating factors. A discussion of gameplay motivation is expanded upon by Guo and Barnes' (2009) research on the purchasing of in-game items. Although markedly different than NFTs, in-game items and other microtransactions exemplify spending external funds (as opposed to in-game resources) towards accomplishing in-game objectives or fulfillment desires related to gameplay experiences. In their discussion, Guo and Barnes viewed perceived playfulness (relating to feelings and concentration), character competency (the functions or utility in-game purchases provide), and the extent with which the purchase is required as factors informing the purchase of in-game items. Consistent with Koo's discussion of gameplay motivations and Guo and Barnes' types of game item values, Park and Lee (2011, p. 2184) found that "online game users experience character competency, enjoyment, visual authority, and monetary value from using and purchasing online game items".

Beyond a view of video games as interactive media, they may also be considered to be a form of art (Rouse III, 2004). McLuhan (1964, p. 258-259) believed games to be an informative means of understanding the people and cultures that play them, and even

likened games to art, viewing both as ways to escape routine and convention, with the author asserting that games afford "an immediate means of participation in the full life of a society" (Woodcock, 2019). In contrast, film critic Roger Ebert famously declared that video games could not be considered art (Ebert, 2010), citing practices such as "Development, Finance, Publishing, Marketing, Education, and Executive Management" as evidence. Plainly, differences between Rouse III (2004) and Ebert's (2010) claims reflect Phillips (2015) remarks wherein games that are viewed as art prioritize gameplay experiences, while games viewed as a business or a means to accrue wealth are thought to prioritize monetization.

What Ebert viewed as evidence of video games' inability to be viewed as an artform, Kerr (2006) views as fertile ground through which to understand contemporary society. Kerr asserts that "Digital games cannot be understood without attention to the late capitalist economic systems from which they emerge and the changing political, social, and cultural contexts in which they are produced and consumed" (Kerr, 2006; Woodcock, 2019). These remarks position games as cultural artifacts through which one might better understand the sociocultural features of a given time. As artifacts of popular culture, video games may also be viewed as a space wherein a culture of the powerful may be challenged or propagated (Hall, 2010). Although a study of play or video games may seem at first to lack urgency, their cultural influence, newfound financial relevance, and connections to global capital (Dyer-Witheford and De Peuter, 2009) and military technology (Crogan, 2011) render them an important venue through which to understand a merging of play and finance taking place in daily life (Johnson, 2022).

In addition to the labor that informs a game's creation, it can be argued that players engage in a unique form of labor termed "playbour" through their interactions with designed systems (Kücklich, 2005). Although a melding of play and labor may not always be pursued with monetary reward in mind, this is not the case for play-to-earn games, which become increasingly problematic upon additional scrutiny. In the case of Axie Infinity, players unable to afford the upfront costs required to play the game may instead pursue "Scholarships" which are described by Sky Mavis as "a system where you can rent Axies without purchasing them." (Axie Infinity, 2022). Manila Bulletin (2021) expands on this, emphasizing the experiences of the game's sizable Filipino audience:

> In essence, an Axie Infinity Scholarship in the Philippines is an agreement between a person who wants to play Axie Infinity but cannot afford to buy the three Axies needed to get started, and a player guild that provides Axies to their players in exchange for a cut of the player's earnings.

Given the cost of the NFTs required to play Axie Infinity, as well as the relative value of the Philippine Peso, it is not far-fetched to suggest that NFT owners or scholarship "Managers" are engaging in a particularly insidious form of exploitation. Beyond an exploitation of labor, the Axie Infinity brand has acknowledged the presence of sexual misconduct in its community wherein scholarship managers request explicit content from prospective scholars (Axie Infinity, 2021). Although play is the means through which labor is performed, experiences in the Axie Infinity community do, at a glance, reflect an ongoing exploitation of labor present across the global, capitalist landscape. These descriptions expand on this work's understanding of Axie Infinity while viewing its

systems as component parts of late capitalist society (Kerr, 2006). Broadly, this work's interest in gaming is likely to relate most closely to research question 1:

> *RQ1*. What is the intended user experience for Axie Infinity and ZED Run according to user and developer messages, application features or text, and registration processes?

Beyond this, the topic of gamification broadens the applicability of scholarship related to video games, with advocates relating it to "anything game-related, including serious games, or even to extend it beyond games to include loyalty programs and applications of behavioral economics" and critics fearing a lack of ethical concern and exploitative intentions (Walz & Deterding, 2015, p. 6) on the part of gamification proponents, who may employ gamification as a means of driving human nature through design, with van der Heide & Želinský (2021) relating these concerns specifically to a gamification of finance. If playfulness is an attitude (Sicart, 2014) and gamification is an ongoing expansion of playful or game-life experiences, the boundaries of what one may view and engage with in a flippant or playful manner risk expansion into contexts where more mindful or cautious practices are necessary to participant wellbeing. Such is the case of a gamification or gamblification of finance, as well as a financialization of gameplay experiences.

Gambling and Gamble-play

This work considers features of unpredictability and risk present in gambling's most conventional forms (slot machines, card games, dice, etc.), and examines the application of gambling's known characteristics to emerging media and finance. Of

interest to this study is an ongoing occurrence where, through the act of gambling, cultural artifacts are made economic, and economic objects are made cultural (Jameson, 1998, p. 60; Cosgrave, 2022). Although a commodification of any and all things might be met with opposition in other contexts, it is a central feature of gambling engagements, as the intensity and ludic character of today's gambling experiences inform a circulation of funds, and exist as a sort of synecdoche of capitalist consumption (Bjerg 2009, 2011; Albarrán-Torres, 2015). In more emotional terms, gambling activities entail a confrontation with randomness, and the thrill one might experience upon doing so (Taleb, 2005). Functionally, gambling is a ritual of products and services where chance facilitates a redistribution of wealth among participants (Nicoll, 2019). Albarrán-Torres (2014) suggests the necessity of varied definitions for gambling due in part to gambling's many potential implications, which could relate to functional societal contexts or more abstract cultural beliefs.

Varied definitions of gambling lend themselves to varied contexts and implications while reflecting the increasing ubiquity of gambling experiences facilitated by digital technologies. Cosgrave (2022) suggests that the ubiquity of gambling is a product of its present legal status and cultural significance, while Harvey (2007) views an expansion of gambling as a feature of neoliberalism and a product of deregulation. Cosgrave (2022, p. 20) highlights many of the tensions present in contemporary consumption of gambling experiences and in doing so captures the essence of this research: "[gambling] bridges a variety of social practices and meanings: entertainment or leisure versus work, play versus serious economic life, chance versus diligence, unproductive expenditure versus accumulation, and so on." Raymen and Smith (2020)

speak to the dangers of ubiquitous gambling. The authors suggest that ubiquitous

gambling experiences exist in the gaps of one's personal life, offering escapism and

diversion at the cost of strained relationships with family and friends, and the worsening

of one's mental health. Raymen and Smith (2009, p. 126) believe this to represent an

"erosion of the system's capacity for discipline" and connect this erosion to Fisher's

(2009, p. 23) vision of a "post-disciplinary society" wherein the boundaries of one's life

and time have broken down in response to competing pressures that contribute to a

blending of work and pleasure. Ambiguous topical boundaries detailed in Zaucha and

Agur (2022) demonstrate an intrusion of finance and risk upon fandom and

entertainment, with characteristics present across processes that facilitate an

accumulation of collectible NFTs. In a culture of capitalist interests and gambling's

ubiquity, individuals are tasked with exercising restraint in the face of increasing

pressures to consume as a means of self-fulfillment (Reith, 2018). Gambling fits this

criterion while enabling the continued circulation of money that Reith (2018) views as a

central feature of late capitalism.

Gambling possesses its own aims or objectives in ways similar to play or video

games. Although it is often assumed that the appeal of gambling is purely financial,

Schüll (2012) describes a tendency for gamblers to follow their intuition, to seek affect,

and to enter a mental state similar to flow in an environment where the gambling industry

seeks revenue through calculation. Albarrán-Torres (2015, p. 256) describes these

calculative efforts as a "testament of the generation of new markets and consumption

practices, and of a palpable investment in new technologies that accommodate the digital

media practices that users (both gamblers and non-gamblers) are habituated to". Through

this description, Albarrán-Torres captures the familiarity of these engagements and their propagation by market forces. The embeddedness of gambling characteristics and experiences in non-gambling contexts is likely to be experienced prior to any engagement with conventional gambling activities (Macey & Kinnunen, 2020). However, gambling or gamble-play participants may not always interact with financial reward in mind, and financial stakes may not always be a requirement of the gameplay experience. In such instances, participants volunteer other resources including their labor and time (Albarrán-Torres, 2018). Although the affective appeals of gambling may contribute to a devaluation of money and its consequences (Goffman, 1967), participants are impacted by wins and losses regardless of the perceived value of what is at stake (Cosgrave, 2022). Schüll (2005) articulates a desire by some gamblers to transcend time and bodily experience through a process of intense focus applicable to video games, and influenced by elements present in video games (Albarrán-Torres, 2013) such as challenge, flow, positive affect, perseverance, socialization, achievement, in-game aesthetics, and knowledge acquisition (Hoffman & Nadelson, 2009).

Beyond the interest of the affect-driven gambler, there remains the appeal of gambling as a means of reward by way of controlled risk. Those who are financially motivated may continue to play in an effort to recover losses in a pattern of gambling behavior known as "chasing" (O'Connor and Dickerson, 2003; Albarrán-Torres, 2013). Interest in chasing echoes Johnson's (2018) understanding of game knowledge acquisition, as players may believe that repetition affords understanding and a greater likelihood of success (Albarrán-Torres, 2013). Although this may be true of some gaming

experiences, this is not the case in games of systems governed entirely by luck (Johnson, 2018).

The proliferation of gambling and its cultural embeddedness is furthered by the adoption of gambling and gambling-like characteristics in non-gambling contexts. In the case of media, Albarrán-Torres' (2014) concept of gamble-play describes a negotiation between user interest in affective media experiences and the profit-motivated entities whose digital designs seek to exploit users' interest. Gamble-play media is defined by its indeterminacy and flexibility, and it is a networked and social experience wherein individuals may transcend temporal and contextual factors limiting one's access to gambling and gambling-like experiences through the use of digital technologies (Albarrán-Torres, 2014; 2015). Gamble-play is a platformization of gambling that reflects the continued incorporation of chance and other gambling-like mechanisms into items and elements of daily life existing beyond the reach of conventional casinos (Ross & Nieborg, 2021). When digital media facilitates gambling practice anywhere and at any time, the possibility exists for the gambler to forgo the potential for missed opportunities (Benjamin, 2006) and to instead consume compulsively. Consumption of gambling experiences is an increasingly mobile endeavor made possible by the affordances of media and digital technologies (Albarrán-Torres, 2018). As a result of technological innovation and the manipulation of those innovations by organizations, gambling is better able to occupy gaps present in one's life, work, and relationships (Raymen and Smith, 2020). However, it must be said that gamble-play media refers to more than a series of shared traits or instances, as it is a set of cultural practices wherein the boundaries separating gambling, gaming, and other digital experiences are made vague, eroded by a

cultural interest in risk-taking, the availability of digital technologies, and the financial benefit of addictive or exploitative designs. Social gambling applications and gambling activities present in video games and other instances of digital media contribute to the further erosion of boundaries separating gaming from gambling (Nicoll, 2019).

The multifaceted discussion of play, design, unpredictability, gaming, gambling, and gamble-play is meant to inform findings related to research question 4:

RQ4. What motivating factors appear to predict engagement with NFT gaming and gambling experiences?

Although evidence of user motivations may be present in the textual analysis portion of this work, it is worth acknowledging that users may not recognize, fully grasp, or be able to articulate the various inputs that inform their behavior. The potential shortcomings posed by user awareness (or lack thereof) may instead be ascertained from an analysis of design features present in the gaming contexts and detailed in developer supplemental materials such as whitepapers or blog posts. Although it is not the intention of this work to fully articulate every intricacy of Axie Infinity and ZED Run, designs present in the gameplay or social experiences relating most closely to the thematic interests of this work will be detailed. With this in mind, the following section details the overarching methodological approach for this study, which includes the establishment of each object of study, as well as descriptions of the steps taken for this work's application of the walkthrough method to Axie Infinity and ZED Run and a textual analysis of user messages occurring in the brands' associated Discord servers.

Methodological Approach and Overview

This study's methodological approach includes application of the walkthrough method to Axie Infinity and ZED Run's desktop applications. Analysis of public-facing documentation made available on, or linked from, the brand's respective websites will also be analyzed to address the walkthrough method's interest in the brands' visions, operating models, and governance. Prior to exploring these areas of interest, it is necessary to provide a general understanding of what Axie Infinity and ZED Run entail. Additional details related to the developers are also provided.

Axie Infinity is developed by Sky Mavis, an organization based in Vietnam whose products and services are of a decentralized nature. The financial health of the company is based in part on the funding of outside investors (Sky Mavis – Crunchbase Investor Profile & Investments). However, Sky Mavis does profit from Axie Infinity and its broader NFT marketplace. Details on the company's founding and operation appear relatively sparse. However, details present across branded communications suggest a vested interest in the future of blockchain applications and technologies. On its website, Axie Infinity is described as "a new type of game, partially owned and operated by its players" (Axie Infinity, 2022a). Users are encouraged to "build up a collection" that can be used "across an ever expanding universe of games!" Axie Infinity boasts the value of its marketplace, the cost of the most expensive Axie Infinity NFT that has been sold, and the number of daily active players. The brand is clear in its use of Blockchain technology, but much of the initial information relates to the game and its world. Information as to how the game plays is sparse, with gameplay pages related to "Battle" and "Land" displaying "COMING SOON" messages at the time of this writing. Although the main page does highlight gameplay categories such as "Adventure", "Arena Battle", and

"Breeding" explicit details as to how users are meant to interact with gameplay systems are not provided. Although the particulars of the game will be explored in greater detail in this work's findings related to the walkthrough method, it is important to acknowledge that information as to how the game actually plays is not immediately apparent. However, a white paper specific to the game describes gameplay features that include battling, breeding, and land. The game's battle system is described as an "idle battle system" with the whitepaper authors likening Axie Infinity's gameplay to Final Fantasy Tactics, a popular turn-based, tactical Japanese roleplaying game, and Idle Heroes, a turn-based mobile game. Specifics as to the game's gameplay mechanics and user interface will be explored in greater detail in this work's findings. However, its core gameplay mechanics appear to be fairly standard or conventional despite its more novel technological foundation.

ZED Run is developed by Australian-based Virtually Human Studio. Text present on Crunchbase.com describe Virtually Human Studio as a company whose interests and applications relate to "Decentralised Entertainment" (Virtually Human Studio – Crunchbase Investor Profile & Investments). Information present on its website and across social channels suggests a similar interest in the adoption of blockchain technology by everyday users with attention towards entertainment and emerging technology. Details on the company are similarly sparse when compared to Sky Mavis. At a high level, ZED Run can be described as a "digital horse racing platform" where user may enter their NFT horses in races for the chance of winning cryptocurrency (Lorenz, 2022). The performance of the NFT horses is determined by various digital factors, with Virtually Human Studio describing these as the horse's "Bloodline, Breed

Type, Coat Colour, Gender and Genotype" (ZED Run, 2022). Users are able to buy and

sell the NFT horses on various secondary NFT markets. The races themselves appear to

be a passive experience. Additionally, users have the option of breeding their NFT horses

through a process that includes in-game interactions and the use of funds external to the

game. In ZED Run, users appear to be encouraged to produce better digital race horses

that they may then place wagers on. With this in mind, ZED Run's gameplay purposes

relate more closely to conventional gambling experiences than do Axie Infinity's.

This study includes a qualitative textual analysis of messages occurring in

Discord servers related to, and managed by, each of the brands. Although this study does

not seek to analyze Discord in greater detail, a cursory understanding of the platform is

necessary as the user messages included in this work's qualitative textual analysis are

embedded in, and extracted from, brand-specific Discord servers, which can be divided

into channels that relate to specific purposes or utilities, and provide users opportunities

to interact with one another through the sharing of text messages (which might include

photos, gifs, stickers, emojis, URLs, or videos) or through interaction in voice channels

(Discord, 2022a). On its website, Discord (2022c) employs inviting language and

positions itself as a platform focused on positive social experiences, and designed for

communities of varying interests:

IMAGINE A PLACE...

...where you can belong to a school club, a gaming group, or a worldwide art

community. Where just you and a handful of friends can spend time together. A

place that makes it easy to talk every day and hang out more often.

Consistent with a tendency for platform language to establish a platform's responsibilities in the eyes of users and regulators (Gillespie, 2010), Discord (2022b) actively establishes what it is, as well as what it is not:

> Discord is a place dedicated to talking and hanging out with your friends, family and communities. Millions of diverse communities are on Discord, from small groups of old friends to huge servers where hundreds of thousands of people can connect over shared interests.

> Discord isn't a social media platform. There is no algorithm deciding what you should see, no endless scrolling, no news feed, no counting likes, no going viral. Instead, Discord is a place where everyone can be themselves and spend time with other people who share their interests and hobbies. Conversations on Discord are driven only by the people you choose and the topics you pick.

As a digital platform, Discord mediates communication by moderators and members of Axie Infinity and ZED Run's Discord servers but shifts the responsibilities of moderation and governance to the brands themselves. Although the utilities of the Discord application determine what is possible for users and moderators, the culture of the brands' servers is a negotiation between those acting on behalf of the brand and the individual users active in the various topic-specific channels made available to them. Ultimately, Discord is the venue through which a meaningful portion of this study's data is gathered, but the platform remains a contextualizing factor and is not a primary object of study despite what this brief overview may suggest.

Analysis of Axie Infinity and ZED Run is pursued with an interest in understanding the emotional experiences and beliefs of application users, as well as the designs and characteristics of the applications these users interact with. Simply, this work seeks to understand the designed systems users are presented with, as well as users' experiences with those systems. In both applications, users navigate digital environments that, through their designs, present complexity and reflect this work's theoretical interests in emerging finance, marketization, financialization, platformization, play, design, unpredictability and cognition, gaming and gamification, gambling, and gamble-play.

Walkthrough Method

This study's methodological approach follows the walkthrough method, beginning first with a high-level understanding of Axie Infinity and ZED Run's respective offerings, utilities, and designs before engaging specifically with the messaging and design characteristics the platform employs in service of the NFTs that are foundational to the gameplay experiences. The walkthrough method was chosen for this study due in large part to its ability to formalize application structures, which aids in an analysis of their intended purposes, users, uses, and embedded cultural meanings (Light, Burgess, & Duguay, 2018; Nieborg et al., 2020). Additionally, the prevalence of software applications, and their existence as places of "significant sociocultural and economic transformations" make them an ideal venue through which to study changes in various domains including entertainment and finance, among others (Light, Burgess, & Duguay, 2018).

To articulate the purposes and processes of the walkthrough method, this study leverages the work of Light & Duguay (2018). Broadly, the walkthrough method

describes an application's vision, operating model, and modes of governance to understand its environment with attention towards how an application's technological mechanisms and cultural features guide and shape user experiences. At its core, this method entails the observation and documentation of app screens, features, and activity, with normal actions studied in greater detail in the interest of critical analysis. Benefits of walkthroughs include their ability to elucidate implicit and explicit design characteristics while allowing researchers to overcome issues of access and gatekeeping that might occur by engaging with organizations' decision-makers or employees (Nieborg et al., 2020). These design characteristics that the walkthrough method engages with reflect a progression from an analysis of affordances related to behaviors offered or restricted by an environment to a view of affordances as being guided by design characteristics (Norman, 1988). Ultimately, the walkthrough method and its analysis of designed characteristics and affordances reflects a view of technology as serving creator or owner aspirations (Pfaffenberger, 1992). As efforts to advance these interests exist within economic, political, and social realms, it is necessary to analyze the socioeconomic and cultural aspects present in platforms (van Dijck, 2013) with the walkthrough method prioritizing a platform's vision, operating model, and governance as broad categories through which to formalize one's inquiry and interpret findings.

The "vision" the walkthrough method concerns itself with includes an application's purpose, users, and potential uses. Additionally, the topic of vision may also consider user understandings of what affordances or opportunities an application provides (Light, 2014; Light et al., 2008; Light and McGrath, 2010; Papacharissi, 2009). In the context of Axie Infinity and ZED Run, the brands' initial visions both appear to have

included the incorporation of NFTs and the normalization of play-to-earn gaming experiences. Although established internally, an application's vision communicates its purposes and values to external audiences. In contrast to this, an application or organization's operating model—established internally—relates to its business and financial strategies with relevant political and economic concerns in mind. This is joined by an application's governance, which relates to managerial and regulatory actions done in the interest of maintaining the application's vision and operating model. With these core categories of interest in mind, it is necessary to review the particulars of the walkthrough method, as doing so will articulate how the method will be employed for the purposes of this study.

Execution of the walkthrough method is predicated upon researcher efforts to act in ways similar to the conduct of a virtual ethnographer, with the researcher engaging in the immersive study of the applications and navigating their interfaces and points of interaction with user experiences in mind. However, it is necessary for the researcher to move beyond the role of the average user. Processes of assessment and analysis are conducted with interest in mediator characteristics including the arrangement of a user interface, application functions and features, the present textual content and its tone, and symbolic representations embedded in the application. In addition to previous segmentation related to the vision, operating model, and governance of an application, practitioners of the walkthrough method explore application characteristics through stages including registration and entry, everyday use, and app suspension or departure.

This study will examine Axie Infinity and ZED Run's desktop applications. Additionally, external materials appearing on the brands' websites will be assessed to

ascertain their visions, operating models, and forms of governances. Materials related to the gameplay experiences including text (titles, disclaimers, etc.), static visual elements, and the in-game user interfaces, will be assed with interest in adhering to the walkthrough method's interest in the intended purposes, users, uses, and embedded cultural meanings. A mixture of external materials and researcher experiences with the applications will be used to fulfill the core interests of the walkthrough method. The methodological approach for this study is comparative in nature, which lessens the potential limitations associated with examining a single game. This method reflects the researcher's understanding of the application environments in ways consistent with this work's theoretical framework. To reduce limitations related to this method, textual analysis of user messages occurring in the brands' associated discord servers provides the perspective of the users who experience these applications first-hand. As a result, a critical analysis of these games' features is supplemented by the analysis of user messages occurring organically in a digital social space related to the games of interest.

Qualitative Textual Analysis

Qualitative textual analysis is pursued due to the method's ability to capture practices of sense-making (Mckee, 2003), which may include the understandings and beliefs of individuals embedded in groups, communities, or subcultures. Carvalho (2008) provides further reasoning for leveraging textual analysis, citing its interests in organizational structure, objects relevant to a group of interest, the members of a given group, the language employed by group members, and the ability for the method to engage with ideological perspectives present in individuals' written communications. With this in mind, the textual analysis component of this work observes activity

occurring in the Axie Infinity and ZED Run Discord servers over the course of a full

seven-day period. Specifically, this study analyzes texts occurring across multiple brand-

owned channels beginning on 27 March 2022 and ending on 2 April 2022. As the outlook

for cryptocurrency markets shifted drastically in the weeks and months that followed, this

time frame is thought to be an ideal context through which to better understand the

worsening condition of the broader NFT environment while still allowing for observation

of day-to-day activity and conversations. Although seemingly stable for ZED Run, this

analysis timeframe occurs in the wake of the most significant hack in crypto history, one

that directly affects the foundation of Axie Infinity. Through analysis of ZED Run, this

time frame intends to capture commonplace interactions with the caveat that the

representativeness of this analysis may vary as this work captures a moment in time. In

contrast, analysis of Axie Infinity represents a time of significant uncertainty.

Beyond this, perennially relevant channels such as "Rules" or "Getting-started"

(both of which were present in Axie Infinity and ZED Run) were analyzed in their

entirety with no limitations to the analysis time frame, as these messages were thought to

be foundational to an understanding of conduct occurring in the brands' Discord servers.

Additionally, two channels "#Public" and "#Scholarship-Applications" required an

analysis time range of 22 May 2022 to 28 May 2022 as the channels were created on May

17 but are considered especially relevant to the interests of this study. It is worth noting

that data related to these channels coincides with crashes in the broader crypto ecosystem.

In an effort to control for this, quotations shared in the findings of this study will include

the channel name.

A more ethnographic or longitudinal approach would be preferable to capture the ebb and flow of these communities. At the time of the analysis window, NFTs were more commonly recognized, with levels of understanding varying. Individuals present in these Discord servers represent the interests of NFT users and investors, with these users likely possessing a greater degree of technical or functional knowledge related to NFTs and NFT games than individuals learning about NFTs from news publications. Generally, these individuals may be thought of as early adopters of NFTs, although the extent of their experiences varies. At the outset of this analysis, the chosen timeframe is thought to allow for a view of the mundane.

Much like the previous study on NBA Top Shot, the texts central to this work were gathered through use of a freely-available Discord Chat Exporter (Zaucha and Agur, 2022). This tool enables the acquisition of user text messages while eschewing complications to the broader research objectives (Badke, 201). The tool employed for the purposes of this study gathers all messages occurring in a Discord server since the beginning of its creation. However, it is possible for particular start and end dates to be specified in an effort to limit the number of messages the user exports. Provision of specific dates allows the user to gather all necessary messages, lessening the likelihood that the number of messages gathered will exceed what can be displayed in Excel (the software used to view the acquired datasets). In contrast to the study of NBA Top Shot's Discord channels, channel descriptions for Axie Infinity and ZED Run were not consistently present. Channels included in this analysis are publicly available to all users that are able to access the Discord server, and oftentimes relate to specific purposes. Interest in these channels is informed by their perceived relevance to this work's

theoretical interests, the volume of texts available to the researcher, and the accessibility of the data (i.e., the #General channel for Axie Infinity was unable to be exported during the chosen time range and is excluded from). As not all channels include brand descriptions, channels descriptions that do not include quotation markets are written by the researcher. The channels included in this analysis are as follows:

Axie Infinity

#Axie-economy – General discussion of the NFT economy supporting Axie Infinity. Conversation oftentimes relates to contextualizing factors impacting the proper functioning of the Axie Infinity economy.

#Getting-started – "Starter Guide: https://welcome.skymavis.com/"

#Public (5/22-5/28) – General discussion related to Axie Infinity. Off-topic messages are present throughout this channel and others.

#Rules – Communication of how users are meant to conduct themselves in the Axie Infinity Discord server.

#Scholarship-applications (5/22-5/28) – Users, share personal ads detailing their interest in hiring "Scholars" or being hired by potential "Managers". Axie Infinity's scholarships act as a way for users to play the game and earn without owning any of the required assets. A portion of the earnings go to the manager who owns the assets used to play the game.

ZED Run

#Beginner-chat – "To all our newcomers, thanks for joining! Use this channel if you have any specific questions on getting started or navigating your way around ZED RUN or our Discord!"

#General – "Everyday discussion about ZED and anything in between. Please do not use third party resources that are not authorized by ZED."

#Getting-started – "Welcome! You made it! Below you will find how our Discord server works!" This channel includes important information, links, and a list of Discord channels that are thought to be beneficial to beginners. A list of official ZED Run community managers is also included.

#Selling-raced – "This is the place to (BUY OR SELL) a (RACED) Horse. Interested? Post your ad here! Tell them what you got. What breed, What sex, What bloodline!"

#Selling-unraced – "This is the place to (BUY OR SELL) a (UNRACED) Horse. Interested? Post your ad here! Tell them what you got. What breed, What sex, What bloodline!"

#Stud-farm – "This is the place to look for LOVE. OK, well not love but partners, partners in breeding. If you have a MALE or FEMALE Horse or Horses post your INFO HERE using the format below. This way other members can then use this info to decide if your horse is a match for what they are looking for."

#Rules – "A few words from the ZED RUN Team!" Channel includes a single message detailing how users are meant to conduct themselves in the ZED Run Discord server.

#Tournament-Discussion – Messages relate to tournaments occurring within ZED Run.

#Want-to-buy – General requests made by potential purchasers.

Collectively, these channels allow for an analysis of user interactions as users' feelings and perspectives are directly and indirectly communicated by the available text. Similar to NBA Top Shot, the Discord servers are structured in ways that lend themselves to market interactions, suggesting similar financial or transactional priorities (Zaucha and Agur, 2022). As a result of the size of the communities, the limited bandwidth of official moderation teams, and varying specificity as to the intended purposes of each channel, off-topic conversation is likely to be present to varying degrees across the analyzed data sets.

Simple-random-sampling (without replacement) was employed in an effort to navigate the abundance of messages present in the analyzed Discord servers and other online spaces (Webb and Wang, 2014; Zaucha and Agur, 2022). Consistent with Zaucha and Agur (2022), populations exceeding 500 items were the subject of sampling, with the size of these samples determined by a sample size calculator with parameters that include a confidence level of 95% and a margin of error (MoE) of 3%. All samples are analyzed in chronological in an effort to best capture the context of ongoing, free-flowing conversations. Consistent with Zaucha and Agur (2022) all analysis timeframe

populations exceeding 500 messages were sampled after messages falling below the population's median word count were removed from the total population. If a channel topic fell below 500 messages after all messages below the median word count were removed, all remaining messages were analyzed. Removal of messages falling below the median word count (spam, simple greetings, emoji-only messages, standalone URLs) prioritizes rich description and allows for the understanding and analysis of individual texts without the need for the researcher to have the entire context. To this end, samples were taken for the following channels:

Axie Infinity: #Axie-economy, #Public, #Scholarship-applications

ZED Run: #Selling-raced, #General, #Beginner-chat

Although each channel is analyzed individually, the results are reported in-aggregate. These results reflect the analysis of 5,393 texts, amounting to 167,318 words, with Axie Infinity accounting for 2,646 texts and 83,543 words and ZED Run accounting for 2,747 texts and 83,775 words. In the interest of transparency channel names are listed alongside quotations present in the findings section of this study. The textual analysis component of this work, as well as engagement with other supplemental data sources such as the brands' websites, whitepapers, or tutorials, seeks to reduce limitations presented by the walkthrough method's interest in application structures.

Table 1.0 Analysis Population and Sampling Statistics. Relevant populations are bolded, with all chosen samples italicized. Channel titles that feature an asterisk (*) ignore or deviate from the primarily analysis timeframe for previously-detailed reasons.

Applicati on	Channel	Total Populati on	Populati on During Analysi s Window	Samp le (3% MoE)	Medi an Word Count	Populati on at or Above Median	Sample (3% MoE) of Messag es at or Above Median	Total Word Count Includ ed in Analy sis	Total Items Includ ed in Analy sis
Axie Infinity	#Axie-Economny	452,169	11,806	979	10	**6,051**	*907*	19,876	907
Axie Infinity	#Getting-started	**1**	0	N/A	N/A	N/A	N/A	188	1
Axie Infinity	#Public	112,944	12,475	983	5	**7,039**	*927*	10,547	927
Axie Infinity	#Rules	**15**	0	N/A	N/A	N/A	N/A	407	15
Axie Infinity	#Scholarsh ip-application s	43,608	6,083	908	22	**3,126**	*796*	52,525	796
ZED Run	#Beginner-chat	304,926	673	413	9	**351**	*351*	8,366	351
ZED Run	#General	13,179	13,179	987	8	**6,715**	*921*	15,560	921

ZED Run	#Getting-started	**5**	0	N/A	N/A	N/A	N/A	451	5
ZED Run	#Rules	2	0	N/A	N/A	N/A	N/A	254	2
ZED Run	#Selling-raced	65,078	757	443	24	**392**	N/A	25,676	392
ZED Run	#Sellin-unraced	33,678	**317**	N/A	N/A	N/A	N/A	12,976	317
ZED Run	#Stud-farm	23,369	**318**	N/A	N/A	N/A	N/A	14,613	318
ZED Run	#Tournament-discussion	11,666	**277**	N/A	N/A	N/A	N/A	3,914	277
ZED Run	#Want-to-buy	1,168	**164**	N/A	N/A	N/A	N/A	1,965	164

Ultimately, the textual analysis component of this work is most applicable to

RQ2, RQ3, and RQ4. Whether or not the data available will be able to effectively address

these questions is to be determined. Opportunities to address the limitations of textual

analysis will be alleviated by application of the walkthrough method. However, the

introduction of interviews or focus groups might also elucidate the navigation of

entertainment and financial considerations, as well as the external factors that inform

player motivation. Having detailed the core parameters that inform this study's use of the

walkthrough method and textual analysis, the focus of this work now shifts to the initial

findings.

Findings – Walkthrough Method – Overview

This work's interest in the vision, operating model, and governance, as well as processes of registration and entry, everyday use, and app suspension or departure builds to a cumulative understanding of the intended user experience, and the actual user experience, with this information discussed in the interest of answering RQ1 and RQ2. However, limited engagement with RQ3 and RQ4 may be made possible by data gathered through use of the walkthrough method. Although effort has been made to engage with the breadth and depth of documents and features related to, or present in, the play-to-earn NFT games Axie Infinity and ZED Run, efforts to fully explore each and every nuance of the application are well beyond the scope of this work. With this in mind, findings related to the walkthrough method begin first with an articulation of Axie Infinity and ZED Run's visions as stated in its public-facing documentation.

Findings – Walkthrough Method – Axie Infinity

Summary

Axie Infinity's mixing of conventional gameplay mechanics with emerging media and financial systems render it a unique case study through which to better understand the appeals and experiences of play-to-earn games. The application's vision is grand, democratic, and defined by risk and uncertainty, while its operating model remains lucrative through the imposition of transaction fees. Developer Sky Mavis' approach to governance is far-reaching in scope while occasionally sparse in detail. Axie Infinity's registration process is an involved one, requiring users to forfeit considerable amounts of

personal and financial information across a variety of different applications or websites before full participation with the game and its systems is made accessible.

With regards to the application's everyday use, users engage with a game that is structurally sound and engaging despite being derivative of other games in the role-playing genre. Everyday use is made distinct by the close relationship between gameplay and the Axie Infinity market, as in-game rewards inform player performance and breeding opportunities, which can then contribute to improved performance in ranked battles or tournaments. At a glance, the vast majority of Axie Infinity's gameplay and financial systems are governed by some degree of unpredictability or randomness. Given the intertwined nature of the game's entertainment and financial systems, users play and invest in environments defined by the characteristics of gamble-play media. Users may depart the game at any time, but are unable to fully remove themselves and their data (including NFTs that they have owned or created through the breeding process) from the blockchain, suggesting the persistent and public nature of blockchain technology. Although it is beyond the scope of this research to engage with each and every mechanic present in Axie Infinity, application of the walkthrough method to this object of study advances scholarship on gamble-play media while capturing the characteristics of blockchain-based gaming and investment vehicles. These findings are further built upon in the sections that follow, with the application of the walkthrough method to digital horse racing game ZED Run contributing to this work's understanding of the visions, operating models, and governance of NFTs, as well as the registration processes, everyday uses, and means of departure.

Vision

At the beginning of the Axie Infinity whitepaper, developer Sky Mavis establishes the purposes of the application with emphasis placed on characteristics fitting of video games or interactive media, as well as those features and qualities that distinguish Axie Infinity from a more conventional understanding of what video games or interactive media may entail:

> Axie Infinity is a game universe filled with fascinating creatures, Axies, that players can collect as pets. Players aim to battle, breed, collect, raise, and build kingdoms for their Axies. The universe has a player-owned economy where players can truly own, buy, sell, and trade resources they earn in the game through skilled-gameplay and contributions to the ecosystem.

In this passage, the developers engage first with the aesthetics of the game and world they have created. Additionally, core gameplay interests such as battling and breeding are detailed. Focus then shifts to the characteristics that distinguish Axie Infinity from the sort of turn-based roleplaying games it appears to be influenced by. These characteristics include the importance of its networked community, as well as its player-owned economy. In this economy, interactions occurring in and beyond the gameplay environment generate real-world value in contexts external to the gameplay experience. These defining characteristics are attributed to the application's use of Blockchain technology, which enable players to "have fun and work towards ambitious goals while simultaneously earning potential resources that will have real monetary value due to an open economic system and demand from other players".

In these same introductory passages, Sky Mavis indicates that Axie Infinity is in early access while boasting about the amount of money its players have spent. By doing

this, Axie Infinity is able to establish expectations for how the game may be understood or critiqued. In doing this, the developers leverage the language of platformization in a protective capacity. The core vision for this application relates to its "community and player-owned economies" which are viewed as "foundational pillars", with the game providing rewards for player engagement and financial investment:

> Axie has a 100% player-owned, real money economy. Rather than selling game items or copies, the developers of the game focus on growing the player to player economy. Marketplace fees go into a Community Treasury whose usage will be guided by AXS holders. The developers monetize through their ownership of AXS tokens. Axies are created by players using in-game resources (SLP & AXS) and sold to new/other players. You can think of Axie as a nation with a real economy. The holders of the AXS token are the government that receives tax revenues. The inventors/builders of the game, Sky Mavis, hold ~20% of all AXS tokens.

In detailing the game's vision, its developers employ fairly democratic language regarding the partial role players have in the game's ownership, operation, and future, with their participation governed by blockchain tokens specific to the Axie Infinity application. The developers provide an ambitious vision for a game that is functionally similar to the Pokémon series of roleplaying games. Alongside these endorsements is a disclaimer noting the inherent risks associated with the game and placing distance between the developers and the financial ramifications its players may experience as a result of their participation:

Disclaimer: Please note that anything written in this white paper should not be taken as financial advice. Axie is a bleeding-edge game that's incorporating unfinished, risky, and highly experimental technology. Development priorities, roadmaps, and features are subject to radical overhaul based on research, traction, feedback from the community, and a myriad of other factors.

Through this language, readers are provided additional information as to Sky Mavis' vision for Axie Infinity, with the developers acknowledging the game's complex financial and technological mechanisms, as well as a potential for risk and reward. With these potential risks in mind, the developers emphasize their interest in the stability of the game's surrounding economy, positioning gameplay developments and improved accessibility as means of achieving this stability.

Beyond the vision of the game as articulated by its developers, there is value in considering the potential uses of the game, which may include the potential for users to earn passive income by renting their NFTs to others (commonly referred to in the Axie Infinity community as "scholarships"). As a result of such actions, some users present in the Axie Infinity community engage in the management of virtual labor. Although gameplay systems such as breeding may provide gameplay benefits (better Axies created through the breeding system may improve gameplay performance) or serve as a source of personal value (players interested in collecting), the possibility exists for Axie Infinity's NFTs to be the focus of investor speculation. With the brand's core vision and these potential uses in mind, the Axie Infinity application may provide affordances or opportunities that include but are not limited to the appeals of gameplay, the benefits of financial investment, or the social opportunities one experiences through participation in

an online community. With this foundational view of the game's vision, it is necessary to engage in a discussion of its operating model.

Operating Model

As a play-to-earn game and an example of games-as-a-service (GaaS), Axie Infinity allows its players to benefit financially from their participation while encouraging replayability through the introduction of new content updates, rewards, or economic opportunities. Axie Infinity makes money through assessment of fees related to user transactions and Axie breeding occurring in-game. Functionally, these fees are not unlike those one might encounter when interacting with more conventional businesses or platforms. However, Axie Infinity's means of making money are made distinct by the entanglement of these moneymaking processes with in-game features. Through their relevance to and beyond gameplay experiences, Sky Mavis is able to make digital assets that might not otherwise be valuable into valuable sources of revenue. Given the popularity of the game and the volatile and oftentimes significant values of these digital assets, it is understandable that even marginal transaction or breeding fees serve as lucrative revenue streams for Sky Mavis.

Governance

Analysis of Sky Mavis' approach to governance is informed primarily by information available on its website with primary interest in its Terms of Use, Privacy Policy, and Code of Conduct. It is beyond the scope of this work, as well as the legal expertise of the researcher, to engage with each and every detail of Sky Mavis' approach to governance. That being said, the categories listed here will be explored with interest in

their relevance to this aspect of the walkthrough method as well as to this study's guiding research questions. This assessment of Sky Mavis' approach to governance will begin first with its terms of use.

Axie Infinity's terms of use relate to its site and application and feel fairly comprehensive despite being more limited than one may expect to see from similar guidelines. At times, these terms are grand in their scope but limited in detail. Despite what the aesthetic characteristics of the game might suggest, Axie Infinity and its associated websites are intended for users 18 years of age or older. Those who do not meet these criteria are not permitted to play the game or register on the website. The terms of service acknowledge a sense of distrust or deception that often accompanies more salacious news articles related to cryptocurrencies and blockchain technology, with Sky Mavis' terms of service forbidding efforts to mislead users with specific interest in the deceptive acquisition of users' login information. However, information that users provide to Sky Mavis, such as questions or suggestions that might aid in the development of the game, are considered the property of Sky Mavis as a result of being shared on platforms associated with their brand. As its terms of use are said to pertain to media channels that are in some way connected to the brand, it is unclear the extent with which Sky Mavis may claim ownership of written ideas that users may provide online.

Although this will be discussed in greater detail in the textual analysis that follows, users often seek out tutorials, walkthroughs, or sources of information in their efforts to better understand Axie Infinity, as improved understanding is thought to be beneficial to in-game success, which may translate to rewards occurring beyond the gameplay context. Axie Infinity's terms of use specify that information available from

third parties is not the responsibility of Sky Mavis. Sky Mavis again leverages the language of platformization in its efforts to establish what it is and is not responsible for, with similar protective efforts applied to Sky Mavis' provision of advertising space.

Sky Mavis provides an assumption of risks associated with the Axie Infinity application, with many of these relating to its incorporation of blockchain technology. Of greatest interest to this analysis is the articulation that blockchain assets are "extremely volatile", with fluctuations in asset value having the potential to "materially and adversely affect the value of your Axies, which may also be subject to significant price volatility". Through these descriptions, it is again made clear that the purposes of the application are markedly different than those of more conventional video games and do, in meaningful ways, relate to mediated gambling or gambling-like activities. Beyond this, Sky Mavis acknowledges a potential for malicious software or users to adversely impact a user's experience in the Axie Infinity community. Sky Mavis also notes ongoing regulatory uncertainty facing blockchain technologies and cryptocurrencies, which could again impact the outlook of the Axie Infinity game and community.

Axie Infinity's privacy policy describes the game's collection and use of user data, while its code of conduct outlines how users are meant to interact with one another. This code of conduct further elucidates Sky Mavis' intentions for its community, which are central to Axie Infinity's long-term vision. These include a need for users to be considerate, respectful, collaborative, and responsible for their words and actions. Users are also encouraged to seek help when encountering issues, to value consensus (or simply agree to disagree), and to communicate concerns that may violate the code of conduct with other individuals or group. Who exactly someone is meant to speak with is, to some

extent, unclear. With these elements of the walkthrough method articulated, this work has established a foundational understanding of the application's vision, operating model, and governance, with these components allowing for an informed analysis of user engagement with the Axie Infinity application.

Registration and Entry

Analysis of user experiences with the Axie Infinity application begins first with registration and entry. Before a user may play the game or participate in the Axie Infinity community in more impactful ways (through purchasing or play, as opposed to online discussion), they must first navigate various registration touchpoints. Compared to the earliest forms of videogames or interactive media, Axie Infinity is far more complex in its accessibility requirements. In my efforts to gain access, I attempted to adhere as closely to the registration instructions provided by Sky Mavis as was possible. That being said, many of the steps do allow for some degree of user choice. This research did not attempt to explore every single permutation of how one might register for Axie Infinity. As a result, it can be said that efforts to gain access to the game are likely representative of users' experiences but are by no means exhaustive. Although this walkthrough focuses primarily on Axie Infinity, the registration process requires users to engage with other applications or platforms. These processes have been detailed to communicate the involved nature of the Axie Infinity registration process.

On the Axie Infinity website, Sky Mavis provides four steps that users must complete to gain access to the game. These steps include the creation of a Ronin Wallet, the acquisition of Axie Infinity's "Axies" (the NFTs that are central to its market and gameplay), account creation, and a download of the game. Creation of a Ronin Wallet

requires users to either download mobile applications on Google Play or Apple's App Store, or to install browser extensions for Google Chrome, Mozilla Firefox, or Microsoft Edge. This account is used to store digital assets or to send Blockchain transactions. I added the Ronin Wallet to my list of Chrome extensions, believing it to be the most expedient option. I was then shown options to create a new account or import another wallet. I engaged in the registration process in the way expected of a newcomer and created a new Ronin Wallet account. Text displayed during the registration process encouraged entry to the Ronin Network's Discord server, a staple of many NFT and crypto communities. During the registration process, user personal data was requested for the purposes of improving the Ronin Wallet. Although both security and anonymity were emphasized, I declined to provide my usage data. Following this, I was asked to provide a password that I would use to login and was later displayed a "secret recovery phrase" that would be necessary to the login process. If I were to lose or forget my login information, the platform indicated that the wallet could not be recovered. Following creation of my Ronin Wallet, I moved to step two of Sky Mavis' registration guidelines: I attempted to acquire the NFTs that were once necessary to play the game.

The latest version of Axie Infinity, Axie Infinity: Origin, allows users to try the game before engaging with cryptocurrencies or NFTs. This shift in the game's accessibility was not abundantly clear and was misrepresented by step two's message to "Get Axies" which is listed before users are told to install the game. Although users may now engage with the game before buying into its surrounding economic systems, the importance and centrality of these systems is supported by the ubiquity of messages appearing across various webpages and registration touchpoints. The introduction of Axie

Infinity: Origin occurred just after the first of two date ranges specified for the textual analysis. Although things have changed since then, many users' experiences up until that point required them to purchase NFTs before playing the game. Acquisition of Axie Infinity's NFTs made registration and entry into the Axie Infinity gameplay environment a more complicated and, at times, uncertain process than simply buying through conventional marketplaces (digital and physical). Sky Mavis provided two options for acquiring the NFTs: to buy them on its marketplace, or to apply for a scholarship listed in its Discord server. As documenting the full process of Axie Infinity scholarship was beyond the scope of this research, I opted to acquire the NFTs outright. Purchasing the game's central NFTs required me to first create an Axie Infinity account which Sky Mavis curiously listed as the third step in the process. Before I could continue with step two, it was necessary to first address the needs of step three.

Having already created a Ronin Wallet, the creation of my Axie Infinity account was a more straightforward process than the previous. Using my Ronin Wallet, I logged into the Axie Infinity marketplace. Upon attempting to do so, I was shown an account number and message (a seemingly random string of characters) and a "Signature Request", which I accepted after seeing no other way to advance the account creation process. After I had logged in, I was shown blue and purple text boxes that read "Let's complete setting up your account" with additional, clickable text that read "Set up email & password". I set up my email and password, and completed a captcha. I received a verification email moments later. I provided the verification code as was requested. At this point, the requirements to purchase had largely been fulfilled save for the acquisition of one of the four currencies listed (AXS, SLP, WETH, USDC). Sky Mavis' limited

guidelines noted that I could buy the necessary currencies from Ronin, or deposit relevant currencies that I already possessed by using a Ronin Bridge. Sky Mavis linked third-party tutorials hosted on YouTube despite efforts present in the Axie Infinity terms of use that distance the developer and game from potential liabilities relating to user generated content. Following this, I again attempted to purchase the three NFTs necessary to access the game.

According to Ronin Wallet, each of the four currencies previously listed could be purchased by adding a method of payment to my Ronin Wallet. As WETH (Wrapped Ethereum) appeared to have the least expensive cost (displayed in USD) at the time of purchase, I opted for WETH. This is admittedly a limited view of the purchasing process, as the currencies listed do differ in the utility and value they provide. The minimum order value was $6.41 USD at the time of purchase. At this point in time, I was under the impression that it would be necessary to purchase three Axie Infinity NFTs, with the most affordable assets listed in the Axie Infinity marketplace costing approximately $21 USD in total. The amount of WETH I acquired was a value beginning in the thousandths, which represented a miniscule share of a single token. Before this transaction could proceed, I was asked to agree to Ramp Network's terms of service and privacy policy, and to provide my email address before proceeding. Following this, I was sent a verification code to confirm my email address and was asked to provide my Ronin Wallet address. After this, the website noted the country from which I was attempting to provide payment information. Use of a credit or debit card appeared to be the only option listed. The time for this transaction to be completed by card "Takes minutes", suggesting an interest in expediency associated with the use of blockchain technology. I was also asked

to provide my billing address and card details. Feeling that I had provided all necessary information, I clicked "Buy Now", which prompted a request for identity confirmation. The reasoning for such a confirmation was clarified by the following message:

> Due to anti money laundering requirements, we need to verify your identity. Usually it's a one-time check that can increase your transaction limits with us for the future.

From there, I began a process of verifying my identity. With this, what was at times a unique and drawn-out purchasing process was extended further.

Attempts to verify my identity sent me to another webpage related to the Ramp Network. Here, I was asked to continue on mobile "To avoid problems with the quality of your verification". I could begin the verification process by scanning a QR Code, or by requesting an email or text message be sent to me. I opted for the QR code, which opened a verification page on my mobile phone when scanned. Verification required me to agree to the terms and conditions, record a video of myself in good lighting, and provide photos of my passport, National ID card, or Driver's license. After agreeing to the terms and conditions, I began the video verification process, which involved getting different circles to line up by moving my mobile phone while having my face in-view. After this portion was completed, I moved to provide a form of identification, noticing that documents from countries such as Afghanistan, Colombia, North Korea, Yemen, and Zimbabwe would not be accepted. I provided one of the three forms of documentation and was then transferred to a page where I was asked to "securely transfer" my data, which included my email address, identification, and current location. I was then shown a congratulatory message saying that my verification was being processed. I returned to the WETH

purchasing page in Ronin Wallet to find a message stating that my verification was pending.

Shortly after this, I reached out to a member of Ramp Network's support team to inquire about how long the verification process might take and was told that the information I provided had not been received and that it would be necessary for me to complete the verification process a second time. After following the previously-detailed verification steps, I reached out to support once again and was told that my verification was accepted. I again attempted to purchase the desired amount of WETH (roughly $21 USD) and was asked to provide a security code related to my form of payment. This lengthy process resulted in the successful acquisition of the WETH that I would need to purchase the NFTs that were once necessary to start playing Axie Infinity. Pages related to each Axie Infinity NFTs displayed their various accessories or aesthetic qualities through the use of animated visuals. These pages included text that spoke to an NFT's in-game skill or abilities, as well as their "physical" features.
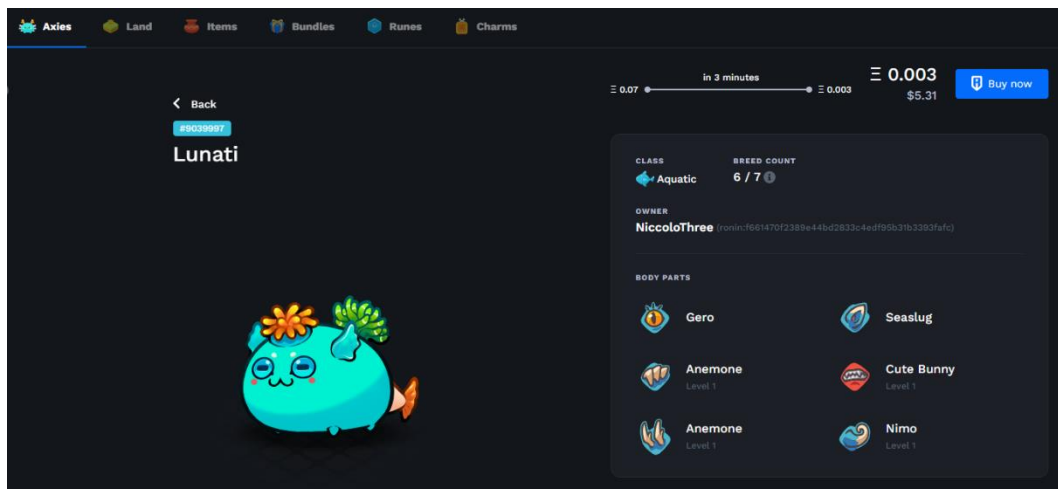
After this, I took a break lasting a few hours and upon returning to my computer, I found that the $21 of WETH that I'd purchased was now valued at roughly $18.26. I decided to download the game before purchasing, curious if the value of my purchase would increase in the interim.

From the initial registration guidelines provided by Sky Mavis, I clicked a URL that allowed me to download the "Mavis Hub" application. The Mavis Hub is a game launcher similar to those provided by Valve (Steam), Epic Games, and Blizzard Entertainment (Battle.net). After downloading the Mavis Hub and logging in, I was brought to a launcher where I had the option to download the various games. I chose to install Axie Infinity: Origin, prioritizing the future of the game over its past (Classic). From there, I clicked to launch the game and was asked to name my profile. Cheery text greeted me, while emphasizing that the game is in early access and likely to change. The first page featured visuals of a forest, statues, and one of the game's characters dressed like a knight. The player is given the option to skip the extra information and story content the game provides. The player is presented the opportunity to engage in a gameplay tutorial. During gameplay, players may learn about the game by placing their cursor over the gameplay elements or visuals, which causes text to be shown. Essential details will be covered in this method's discussion of everyday use.
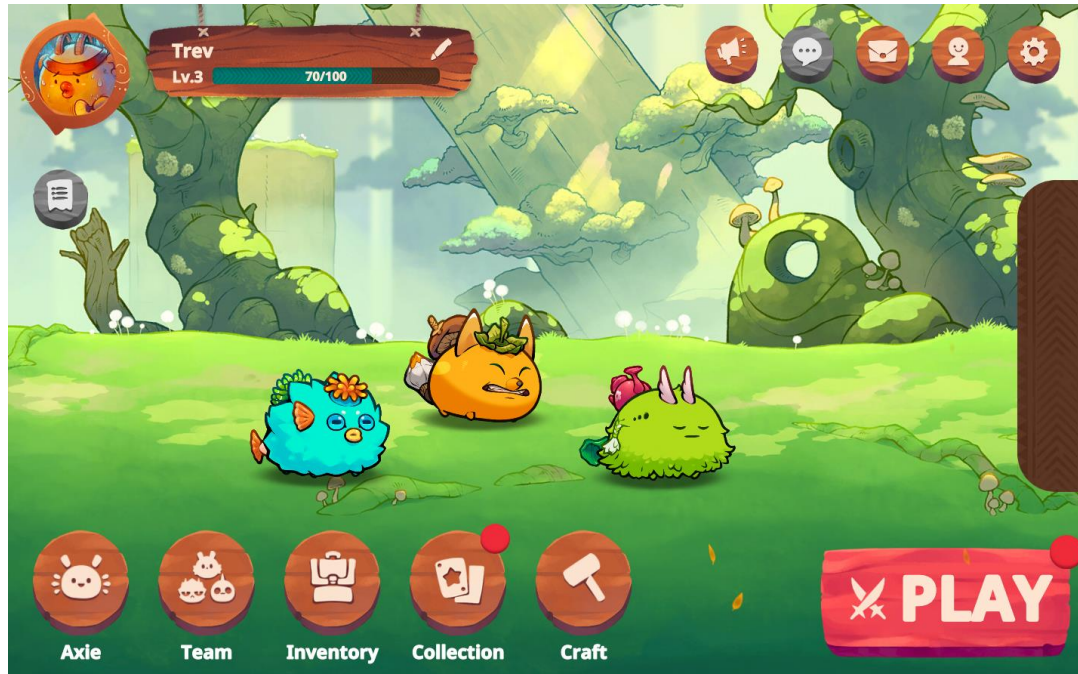
Despite the cute and approachable nature of the game's aesthetics, entry into Axie Infinity is an involved process. Although the need to own the game's NFTs has been lessened, this sort of process is one that more interested players will need to engage with at some point or another. Advocates of blockchain technology often emphasize its expediency or its interests in anonymity. This may be true after an individual has established all necessary information, but the amount of information players are expected to provide is far greater than that of a player engaged in more conventional video games. There is a seriousness to the game's assets and surrounding financial systems that betrays the game's visuals, audio, text, and interactive elements. The verification process detailed here and its concerns with money laundering reflect a reputation of suspect activity oft-associated with the broader crypto environment. Despite the familiarity of the game's turn-based gameplay and colorful aesthetics (which were at times markedly similar to another title, "Slay the Spire"), entry into Axie Infinity's gameplay environment departs considerably from typical interactions with videogames with these deviations relating

almost-entirely to its incorporation of blockchain technology. Although Axie Infinity is a

known-quantity in the crypto space, risks and uncertainties related to the purchasing

process are relegated to users who may not understand blockchain-based games in their

entirety but do recognize the game's entertainment or money-making appeals.

Description of everyday use of the game seeks to understand many of the mechanisms

that govern player experiences.

Everyday Use

      Axie Infinity is described in its supporting whitepaper as an "open-ended digital

pet universe" where its NFT assets provide access to gameplay experiences now and in

the future, offering users "a world of infinite experiences." This analysis prioritizes the

everyday use of Axie Infinity: Origin, as it is positioned as the future of the game and

was the most accessible and relevant of Sky Mavis' gameplay offerings. Axie Infinity:

Origin is distinguished by a number of gameplay features but differs most significantly

from the Classic offering by allowing players to begin the game before purchasing any

NFTs. Axie Infinity: Origins' gameplay involves battling (which its developers liken to

the "Pokémon" series of games) and breeding, wherein players can "create new

offspring" that are "like real-world pets" and can be used in-game or sold on the game's

associated marketplace. At its most basic, Axie Infinity: Origin is a turn-based role-

playing game where players use cards available in the hand that they have drawn, with

each card relating to an ability one of their three selected NFTs possesses. The number of

cards a player can play on a given turn is governed by the energy the player has at the

beginning of the turn, as well as the energy cost of each card. Cards impact the gameplay

experience in different ways, allowing players to attack enemy avatars, to heal their

Axies, or to apply various buffs or debuffs. In these ways, the gameplay experience is likely to be familiar to individuals with some experience with role-playing games. The ability to sell one's assets may seem secondary to the gameplay experience, but text indicating an effort to avoid "hyperinflation of Axies" suggests that changes to the game are done with interest in maintaining the health and future of the its surrounding economy and marketplace. Developer Sky Mavis describes the game as skill-based, believing it to be an ideal context for future esports. Money is, once again, a driving factor in this assessment, with the developers believing the game's growth to relate closely to player engagement fostered through risk-taking.

Through interaction with the game and its many systems, players may acquire Axie Infinity Shards ($AXS), a blockchain-based token allowing for players to help in guiding the game's future and development. According to the developers, such a system intends to decentralize ownership (a value present in the broader blockchain community)

and to incentivize player engagement. Play-to-earn video games differ from more conventional video gaming experiences and are, through their incorporation of monetary risk and reward, structurally similar to gambling activities. Although players may engage with Axie Infinity out of a love for its gameplay or aesthetic characteristics, the prevalence and importance of designed systems related to external rewards suggest greater interest in Axie Infinity as a vehicle for financial opportunity. This assessment contextualizes this study's engagement with its core gameplay. The derivative nature of Axie Infinity's gameplay belies the complexity of its economy and supporting financial systems. Given the game's interest in risk and the potential for unpredictability and volatility, Axie Infinity's appearance as a conventional gaming experience is undermined by the ability for its incorporation of unpredictability and randomness to render real-world financial consequences.

Upon launching the game for the very first time, players are presented tutorials that tell them how the game is played. Not all tutorials are made available from the get-go, allowing for players to build their understanding of the game in gradual ways tied to their progression and the accomplishment of in-game objectives. These tutorials relate to battling, with many communicated alongside progression in the game's single-player adventure mode, which allows for players to engage with the game's systems in a less intense or competitive environment with the chance to earn rewards along the way. Beyond the adventure mode, players may enter Axie Infinity's arena, which acts as a venue for multiplayer. Players can practice with one another, play ranked matches, or complete in tournaments with the potential to earn rewards. With its close relation to the game's marketplace in mind, Axie Infinity's "breeding" mechanic actually occurs beyond

the game application and is instead present in the Axie Infinity Marketplace. This suggests that the interests of this mechanic may be primarily of economic interest and secondarily of gameplay interest.

Axie Infinity's economic and financial interests, as well as the appeals of these interests, appear to be prioritized. However, the application is also honest in its existence as a game. Despite its blockchain foundation, the core gameplay experience is familiar. As much, it is likely that many of games mechanics could be retained without the incorporation of blockchain technology. However, it is this incorporation of blockchain technology and its potential for financial rewards that makes the game distinct, exemplary of emerging media, and likely to inform user engagement with the game.

App Suspension or Departure

The process of suspending one's use of the Axie Infinity application or departing from the Axie community entirely is far less detailed than the involved processes of

registration and verification as previously detailed. Termination of an individual's account may occur following a violation of the game's terms of service, but users' ability to full remove them from the game and broader blockchain environment is limited. Users may disconnect their Ronin Wallet address from their account, sell all of the game-specific assets they have acquired on the game's marketplace, withdraw all funds present in their wallets, uninstall the game from their device(s), and remove all extensions or applications from their devices relating to the Ronin Wallet. Payment information may also be removed from the Ronin Wallet. That being said, there does not appear to be any way of deleting one's account from Axie Infinity or Ronin Wallet, suggesting that both will continue to exist. Although it is possible for a user to walk away from the game, the data that the user has created through registration and gameplay (specifically Axie Infinity's breeding system, which allows for players to create in-game assets that can be used, bought, and sold). If an individual were to forgo selling assets or withdrawing funds before stepping away from the game, those assets will continue to exist regardless of their accessibility. It is possible to leave the game, but some aspects of a user's participation are unable to be done due to the unique nature of the blockchain. This is explored in greater detail in this study's analysis of ZED Run, where my understanding of application departure benefitted from interaction with one of the community's Discord moderators. The process by which an individual gains access to Axie Infinity is a complicated one despite the relative simplicity of its gameplay and everyday use. Although users are not forever-entrenched in Axie Infinity's gameplay or financial environments, the process of fully departing does contain limitations and has the potential to be an involved and even

stressful one depending on the health of the game's marketplace and the volume of assets a player possess.

Findings – Walkthrough Method – ZED Run

Summary

ZED Run's virtual horseracing represents a blurring of gaming and gambling experiences. Through the provision of its play-to-earn gaming application, the developers seek to foster a creative and collaborative community. ZED Run advances the interests of blockchain technology and embraces speculative investing as a means of accumulating wealth despite developer efforts to emphasize skill, gameplay, and community. Virtually Human Studio employs the language of platformization, setting expectations for its users and attempting to mitigate potential regulatory issues related to its similarity to gambling on conventional horse races. Users may develop a sense of ZED Run without owning any of its associated NFTs, but will ultimately be required to purchase if they wish to participate in races with a potential for monetary rewards. ZED Run communicates the centrality of its marketplace, intending it to be a core component of users' everyday engagement with the application.

ZED Run's registration process appears to be consistent with other NFT applications, requiring users to navigate multiple registration touch points in order to possess all components necessary to purchase the game's NFTs. Only after doing so can players fully engage with the actual gameplay. Similar to Axie Infinity, ZED Run's gameplay systems appear to be governed by varying degrees of unpredictability and randomness. Probabilities related to specific outcomes or attributes influence the value of

the game's NFTs, with these values experienced by users active in the game's

foundational marketplace. Plainly, changes in the game's virtual assets have the potential

to render economic consequences in and beyond the game. Much like Axie Infinity, users

of ZED Run may unknowingly play and invest in gamble-play environment. Users of

ZED Run are similarly limited in their ability to fully remove themselves from the

game's many systems, as acquired assets and accounts are unable to be deleted. This

analysis succeeds in establishing the many requirements users must meet when entering

the play-to-earn environment adopted by NFT games, capturing the complexity of the

registration process, and highlighting the breadth of information a user is expected to

provide. Additionally, the interconnectedness of ZED Run's gameplay and financial

systems is described, reflecting a blurring of seemingly separate domains prevalent in

today's digital technologies. ZED Run's aesthetics appear to be informed my pop culture

imaginings of digital space and communicate the cutting-edge nature of the game and the

technologies that enables its play and marketplace. Ultimately, users are able to exit this

environment, but are not fully able to remove all data they have provided or created as a

part of their engagement, suggesting the persistence of blockchain technology. Although

the future of NFT games and technologies remains unclear, user participation in these

spaces of play and investment produces perennial digital artifacts regardless of their

accessibility.

Vision

Much of the information related to the walkthrough of Virtually Human Studio's

ZED Run is available on the application's website and guide. This includes the game,

which can be played entirely through a web browser. The game is described as "one of

the first Non-Fungible Token (NFT) projects that enabled users to become stable owners who could buy, breed and race their very own digital racehorses", leveraging ambitious language about being "one of the first" to a gameplay interest that seems, to some extent, to be fairly niche. Virtually Human Studio describes the unique characteristics of its application, which run on the Ethereum network and, through the use of Smart Contracts, allow users to "to purchase, sell, breed and race statistically unique digital thoroughbreds, which can then be visualized on a website that the user can interact and earn Ethereum from ZED RUN (ZED)". As a product of blockchain technology, it can be inferred that the application's purpose relates, to some degree, to the continued relevance and adoption of blockchain technology. Additionally, ZED Run is forthright in its financial interests, calling attention to the ability for players to earn through their pay, and emphasizing the appeals of its marketplace.

Beyond the interests of blockchain technology, ZED Run consistently emphasizes the importance of its community, which is described in its introductory guide in the following way:

> ZED RUN is empowered by its 40,000+ strong community from around the world, driving a creative and collaborative culture. Everyday, community participants are finding joy in the digital racehorse ownership and the discovery of friendly competition across futuristic racetracks, 24 hours a day, 7 days a week. Subsequently, ZED RUN community's innovative edge and expansive reach has attracted the attention of thousands, including mentions in The New York Times.

Although the utility of the app, and its users' motivations for playing, are first associated with the benefits of its play-to-earn structure and marketplace, Virtually Human Studio

positions community as an essential component of its success and vision. The uses of the application include the purchasing, breeding, and racing of horses, as well as the management of a one's in-game stable. At a glance, these uses relate closely to the entertainment benefits of gameplay. The centrality of the game's marketplace and breeding systems suggests, however, that the game's uses relate more closely to financial interest. Potential uses of the game may approach NFT ownership as a source of passive income or a venue or asset speculation. Additionally, the affordances or opportunities the application provides to users include gameplay benefits, financial opportunities, and the potential to join an online community. ZED Run's financial and blockchain-specific appeals appear to drive much of its vision, with these interests supplemented by a vision of a creative and collaborative community.

Operating Model

Like Axie Infinity, ZED Run's operating model involves its existence as a play-to-earn game, and another example of games-as-a-service (GaaS). Players of ZED Run stand to benefit financially from their participation and NFT ownership, assuming that these NFTs are competitive in-game, or capable of producing more competitive NFTs through the game's breeding system. ZED Run's terms outline its means of revenue, which relate to the assessment of fees on transactions and through its breeding system. Fees are transferred through the Ethereum network and are facilitated by MetaMask. These fees, referred to in one instance as a "Commission" lubricate the various processes that inform user activity in ZED Run's supporting marketplace. These fees do not appear to be set at a fixed rate. Given the potential for volatility in the NFT marketplace, as well as a general understanding of the game's fees, an assessment of fees is likely to be a solid

source of revenue, as continued interaction with the game is predicated upon user actions that require a fee or "Commission" to be paid. This work's understanding of the game's operating model is limited, but does succeed in illustrating the entanglement of gameplay and financial systems central to this study's examination of NFT games.

Governance

Analysis of Virtually Human Studio's approach to governance is informed primarily by information available on its website with primary interest in its Terms of Service, Privacy Policy, California Consumer Privacy Act Notice, and Community Guidelines. Much like the previous walkthrough of Axie Infinity, it is beyond the scope of this work to engage exhaustively with Virtually Human Studio's approach to governance. Analysis of this approach begins first with the developer's Terms of Service.

ZED Run's terms of service include boilerplate language that informs users that the terms relate to its website and smart contracts. There is one instance that appears to be a typo, lending some level of informality to this messaging. Restrictions of greatest importance to this work include the need for users to be eighteen years of age or older, as well as a refutation that ZED Run's gameplay exists within the realm of gambling. As a platform for virtual horse racing, the ability to compare ZED Run to real-world horseracing, as well as prevalence of sports gambling related to this activity, is immediately apparent. Through the applications' terms of service, Virtually Human Studio makes a concerted effort to differentiate the game from what many may assume to be a gambling game in the truest sense. The text detailing this refutation is as follows (the capitalization of all text is consistent with how it appears in the terms of service):

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WHEN PARTICIPANTS COMPETE IN RACES USING THEIR VIRTUAL

THOROUGHBREDS, THEY ARE UTILIZING SKILL TO CHOOSE THE

THOROUGHBRED, THE RACE, AND OTHER FACTORS SUCH AS THE

GATE FROM WHICH THE THOROUGHBRED WILL RACE. IN OTHER

WORDS, PLAYERS' ABILITIES DETERMINE THE OUTCOME OF THE

SKILLS-BASED COMPETITIONS. GAMES OF SKILL ARE PERMITTED IN

MOST JURISDICTIONS AND DO NOT CONSTITUTE GAMBLING (WHICH

GENERALLY REQUIRES A GAME OF CHANCE, PRIZE, AND

CONSIDERATION TO PLAY). SOME JURISDICTIONS LIMIT GAMES OF

SKILL WHERE PAYMENTS ARE INVOLVED. IT IS YOUR

RESPONSIBILITY TO DETERMINE WHETHER THE JURISDICTION IN

WHICH YOU ARE LOCATED PERMITS SKILL-BASED COMPETITIONS.

WHEN YOU PARTICIPATE IN COMPETITIONS, THESE TERMS OF

SERVICE SHALL APPLY.

These remarks allow Virtually Human Studio to inform its regulatory boundaries and

requirements. It is, in the eyes of its developers, a game of skill, with its age requirement

likely informed by the role of money in gameplay, as opposed to the game's similarities

with gambling. There is a blurriness here that the language of platformization effectively

exploits. Additional, this language allows the developer and game to circumvent

regulatory authority in "MOST JURISDICTIONS". These guidelines acknowledge the

role of skill in gameplay as articulated by Johnson (2018), but ignore the role of

randomness, chance, and luck. Despite what this language suggests, the argument that the

game is purely skill-based is unlikely to hold up given its dependence on obtuse probabilities.

Towards the end of the application's terms of service, the developers list a series of acknowledgements, many of which appear to be protective in nature. Through acknowledgements, the realities, volatility, risks, and complexities of ZED Run are passed from the developers to users, who bear the burden of consequence. Virtually Human Studio distances itself from the speculative nature of NFTs, their existence as financial assets, and risk of inadvertently providing financial advice through an encouragement to engage in gameplay:

> NFTs are not intended for speculative use, are not sold or represented to be financial product and nothing we publish is in any way financial advice to you or any other person

> we are not providing and will not provide any fiduciary, advisory, brokerage, exchange or other similar services to you or any other person

Additionally, the developers note the volatile nature of the NFTs and their uncertain future, while acknowledging the technical complexity of the NFT purchasing process. Although the potential risks are not made entirely clear, users appear to be encouraged to approach this gaming and financial environment with an appropriate level of caution:

> NFTs may experience or may have extreme price volatility, including being worthless in the future

> a significant degree of IT sophistication is required to safely deal in and store NFTs of any kind using a Digital Wallet

Despite the lofty visions of many NFT projects, as well as positive appeals related to the game's potential for financial and social rewards, ZED Run is clear in its terms of service that risk and complexity may not bring about such positive end results for users.

ZED Run's privacy policy outlines a collection of users' personal information that occurs when visiting the application's website, playing the game, or contacting the developers. The developers assert an interest in transparency and suggest that user data is collected in the interest of providing users "the best experiences". These data are collected for the purposes of game improvement, user research, and the protection of Virtually Human Studio's property, among other things. The information collected is dependent upon how users interact with the brand and application and can include personally identifiable information (names, addresses, contact information), data from third party sources (primarily related to blockchain technology), demographics, location data, connections to others, payment information, and transaction details. Virtually Human Studio's privacy policy also details to whom the collected data can be disclosed to. This list includes third parties connected to verification, law enforcement, government, consultants, bankers, and merchants to name but a few. This policy is joined by the California Consumer Privacy Act Notice, which outlines how data is collected, used, and disclosed. Understandably, this policy is only applicable to California residents. Purposes for data collection, and use of the collected data, appear to be fairly standard and serve as a means for Virtually Human Studio to protect itself and its product from potential litigation, with these policies serving as key pillars of its approach to governance.

ZED Run's community guidelines are another form of governance. These guidelines envision a safe, fun, and global community. These guidelines are preceded by a description of activity present in "any gaming environment" where users may "show too much emotion", at times doing so disrespectfully. ZED Run's developers seek the engagement of people "from all ages, races and genders" and emphasize the importance of positive interactions. This vision for ZED Run's community prioritizes inclusivity. Although it says that it is interested in the attention of people of all ages, its term of service do include age requirements, limiting who is actually able to play the game. That being said, the ZED Run community is present across various digital touchpoints including Discord and Twitch. ZED Run's community guidelines prioritize users' interactions with one another, but do extent to legal issues specific to and beyond ZED Run.

According to ZED Run's community guidelines, users are not to discriminate "on the basis of gender, race, colour, ethnicity, age, physical appearance, disability, sexual orientation, gender identity or expression" and should not use hate speech or otherwise be insensitive in their communications. The importance of users' privacy is reiterated here. Users are encourage dto prioritize the mental health and wellness of one another, as well as themselves, and to not engage in bullying, harassment, sexual misconduct, the encouragement of self-harm, or the promotion of illegal activity. One section directs users to "Love yourself and therefore be yourself", which at first glance appears to relate to a culture of positivity and acceptance but is, in the clarifying text, intended to discourage the person of other persons in or connected to the ZED Run community. This is followed by an interest in respecting intellectual property. Users are encouraged to

report any issues they may encounter during their time in the ZED Run community. An email address allowing users to do so is provided. These guidelines are ZED Run's most user-focused approach to governance and are purposeful in their efforts to foster the creative, collaborative, and joyful community detailed elsewhere in the game's guide. Similar to this work's walkthrough of Axie Infinity, establishment of the application's vision, operating model, and governance affords this research a foundational understanding that can then be applied to the analysis of user registration and entry, everyday use, and app suspension or departure.

Registration and Entry

The first step of the registration process for ZED Run asks users to sign in using one of twelve social media accounts including Google, Facebook, Twitter, Discord, and Twitch; entering their email address, or using the MetaMask browser extension. Given the importance of MetaMask to the economic features of ZED Run, I opted for MetaMask. ZED Run notes that possession of an Ethereum wallet is a necessary part of the registration process, making the decision to create a MetaMask account an appropriate one. Alternatively, users are presented the option to create a ZED Run Wallet, which boasts improved transaction fees, as well as the elimination of gas or transaction fees incurred when racing. Although the systems at play here are markedly different, the benefits of different wallets, alongside the knowledge that other wallets may be accepted, was to some extent reminiscent of credit card benefits.

Registration for a MetaMask wallet offers users the opportunity to import an existing wallet or to create an entirely new one. MetaMask communicates that it collects user data, but allows users to opt out of the data collection process. User data is not sold

for profit. The decision to not provide data does not prohibit account creation. This level of flexibility did not appear to be present in all registration touchpoints detailed in this study. Like Ronin Wallet, MetaMask required a "Secret Recovery Phrase" that, when entered, allows users to access their account. MetaMask advises users on how best to record and protect this information, listing options such as a password manager, bank vault, or safe deposit box. Given the wallet's connection to a users' personal information and methods of payment, the decision to approach user security in this way indicates an understanding on the part of the application that user privacy and security is essential to the proper functioning of the MetaMask wallet and the marketplaces it is used in. Although MetaMask provides currency conversions and allows the upper to updated their primary currency (I opted to view currencies in with with "US – United Stated Dollar" select), it is necessary to use another service, such as Coinbase, to purchase or deposit cryptocurrencies used in the purchasing of ZED Run's NFTs.

After MetaMask was set up, it was necessary to refresh the page. I opted to login, and the Metamask browser extension completed the process, notifying me that I was signing into ZED Run. From there, I was first asked to provide "Basic Information" and confirm that I was eighteen years of age or older. It was then necessary to agree to the terms of use and policy. Users must scroll to the bottom before accepting, indicating an effort to establish that the user was exposed to all text they agreed to even if they did not actually read it. Following this, I was able to start using ZED Run. Unlike Axie Infinity, ZED Run did not suggest any initial accessibility limitations related to the possession of its NFTs. Upon starting the game, the first instance of text I was greeted with welcomed me to the game, saying that "Your legacy starts here". Additional text informed me that

"Exploring the Marketplace is the best place to buy and own your very first racehorse". Although it was possible to explore the ZED Run application, actual gameplay participation still required ownership of the game's NFTs. This suggests the centrality of the game's marketplace to its design and users' experiences.

The slides of information that followed encourage users to "Race against others and rein supreme" with the suggestion that advancing through the games racing classes would be beneficial to the accumulation of prize money. ZED Run consistently emphasizes a potential for monetary rewards, suggesting that affordances related to gameplay are secondary in the minds of its developers. As a result of this positioning, gameplay affordances may be considered a secondary motivating factor for users. The following slide provides detail more closely related to gameplay, including mentions of horse bloodlines, breed types, and genotypes, with users encouraged to improve their knowledge of the game and its systems to improve their "racing skill and strategy". For users to succeed, it is suggested that they understand the game. This relates closely to the developer's previous emphasis on skill, lessening the perceived importance of randomness, chance, or luck. Other tutorial slides detail an ability to add or withdraw funds, monitor transactions, name their stables, and view the performance statistics related to their NFT racehorses. Users are invited to buy racehorses from the marketplace, to rent racehorses, or to join another player's stable. Beyond viewing the app or watching others play, NFT ownership is a gameplay requirement. Processes of buying, renting, and joining a stable are detailed in this work's discussion of everyday use of the ZED Run application.

Everyday Use

As online sports betting and casinos are illegal in the state of Minnesota, I felt it was better to be cautious in my approach to the ZED Run application's ability to race digital horses for the chance at monetary rewards. With these laws in mind, I did not purchase any of ZED Run's NFTs and was unable to experience the game in the fullest sense. This portion of the work is informed by the gameplay guide provided by Virtually Human Studio, as well as time spent watching the game be played by others, which is facilitated by the application and encouraged by its developers.

As some form of ownership is required to access the full suite of gameplay opportunities, discussion of everyday use begins first with a general overview of the buying process. Clicking the "Buy a racehorse" button present in ZED Run directs users to a page where they are encouraged to "Explore 100,000+ Racehorses Today!" and "Explore Hawku", which is a marketplace related to the game. When viewing horses that are available for purchase, users are shown the horse's name, breed type, genotype, bloodtype, skin, and race statistics, which include the number of races a horse has participated in, as well as its performance rates. The process of purchasing a racehorse was not as simple as one might expect. After clicking the "Buy now" option, users must connect their wallet to the associated network, submit a transaction to unlock selling functionality, and sign a message with their wallet in order to continue. These purchases appeared to accept Ethereum, which could be acquired by using Coinbase, Transak, MoonPay, or Wyre. Users could also directly deposit Ethereum that they already possessed. Options to rent a racehorse, as suggested by the application, were not accessible in the ways the tutorial suggested. Clicking the "Rent a racehorse" button brings users to a page that features the product roadmap and asks if owners or borrowers

would be interested in such a feature being added to the game. The option to "Join a stable" was similarly overstated, as this button linked directly to the game's associated Discord server. How exactly one could team up or join a stable was not made clear.

Races, tournaments, and breeding are the core gameplay mechanics ZED Run's users are able to interact with. Users have the option of participating in single races or tournaments. Races are differentiated by distance requirements, class restrictions, performance ratings, entry fees, and prize pools. Tournaments include additional parameters and require players to advance through different stages (qualifying, quarter finals, semi-finals, and the finals). Players who participate in tournaments stand to win greater totals, with the top right corner of the tournament page boasting the winnings of 197 tournaments totaling over three million dollars (USD). Developer messaging states that tournaments also offer a more strategic experience. Races may also be viewed by players who select the "WATCH 3D" buttons present throughout a list of ongoing or upcoming races. These races begin with the introduction of the virtual horses, with horse names, stable names, career records, win rates, genotypes, generations, and bloodlines displayed. Career records and win records, however, are obstructed until the results of the race have been determined.

In ZED Run, multicolored, polygonal horses race along a digital track. One aspect of everyday use includes the ability to watch races. In one of these races, relaxing electronic music played as the horses traveled across glossy a glossy track floating in a digital sky. Towering monoliths floated alongside the track as I watched the horses pass one meter marker after another. In one instance, the words "ZED TOKEN" crawled across a banner on the side of the track. The game's background visuals shifted as the race progressed and were at times reminiscent of Disney's "Tron" or Warner Bros. "The Matrix". Some environments even related to recognizable brands such as Budweiser. These comparisons are purposefully listed, as ZED Run and other blockchain projects acknowledge through their visuals the wholly digital nature of their products, playing on an understanding of digital worlds realized through pop culture artifacts.
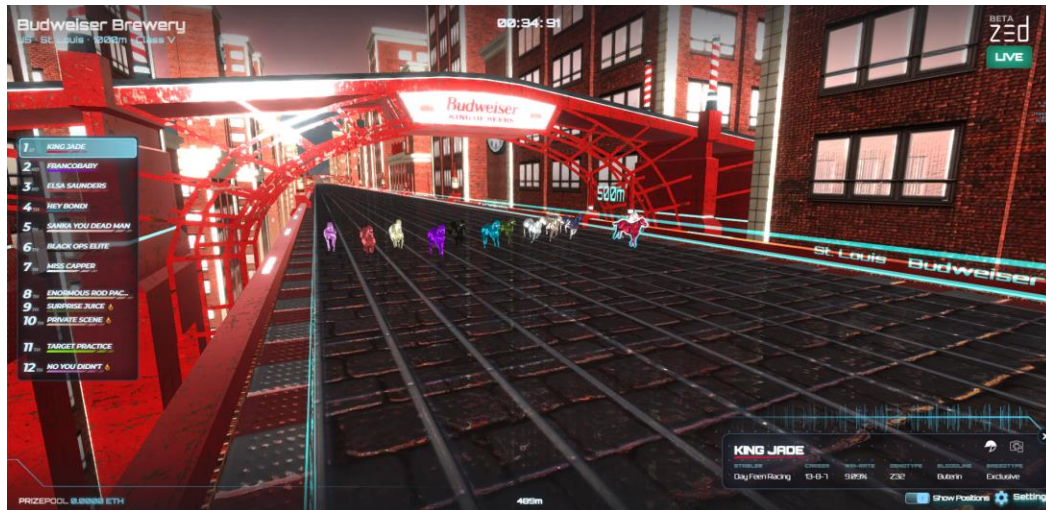
As races progress, a timer placed at the top and center of the screen increases, indicating the amount of time that has elapsed since the race began. The positions of the horses were displayed on the lefthand side of the screen, with the prize pool detailed below them. Within these positions, the appearance of a fire symbol or icon indicated that a player's chosen horse was projected to finish with a top three placement. When the race finishes, a short replay is shown, similar to what one would expect from a photo finish. Participation in a race includes similar visuals but requires the user to select which horse they will race and what gate the horse will begin the race in, among other things. Gameplay outcomes were determined by a combination of player choice and performance statistics relating to the "genetics" of the game's NFT horses. These include a horse's ancestry, bloodline, genotype, and breed type, with additional characteristics such as ability, stability, distance preference, stamina, breeding talent, and breeding decay governing the specifics of a horse's ability to generate success in the racing or breeding context.
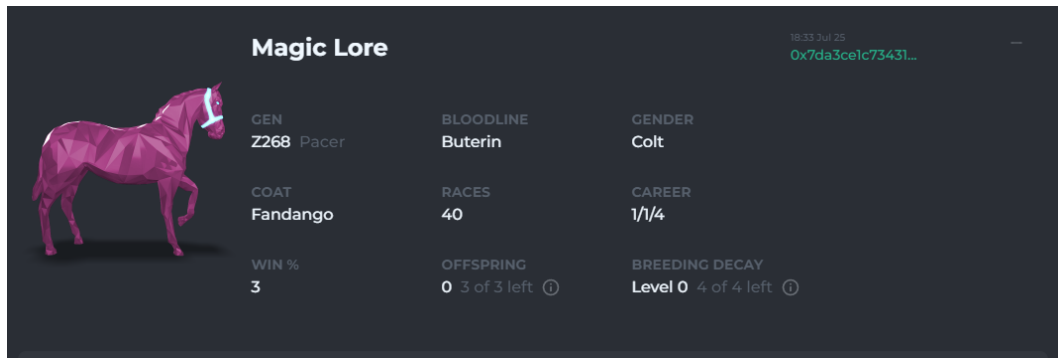
Player knowledge and choice do appear to hold some sway over the outcomes of the game, but much of the actual gameplay seems to be governed by probabilities assigned to a horse's features. The number of statistical categories, as well as their centrality to the game, suggest a gameplay environment that requires players to navigate numerous probabilities despite likely being ill-equipped to do so due in large part to the cognitive biases and failings articulated in this study's discussion of unpredictability and randomness. The perspective held by the developers that race outcomes are a product of user skill is unsettled by the various probabilistically-determined systems present in the racing and breeding processes.

ZED Run's marketplace is another component of its everyday use. As horses can benefit users in racing and breeding, the need to purchase additional NFTs, or to be aware of changes in the market for these NFTs, is an ever-present need. As a result, the potential for speculative purchasing is present. This speculation informs and is informed by the presence of ZED Run's breeding mechanic. Developer reasoning for breeding includes the potential to produce high-performing racehorses and a desire to create additional NFT collectibles or rare cosmetics. Breeding is described as a way to "generate a yield" with more valuable bloodlines garnering higher prices in the game's

marketplace. Breeding may also allow players the opportunity to create "legacy and value", which is described in the following way:

> Let's say you own a racehorse that bred an offspring and the offspring racehorse goes on to be a champion on the racetrack. The community will always know that your racehorse was responsible for breeding that champion. Therefore, you are building your legacy and increasing the demand for your racehorse when you choose to put it in the Stud Farm. We encourage you to keep track of all your offspring, as this indirectly impacts the value of your racehorse.

This excerpt acknowledges the interconnectedness of ZED Run's gameplay, social, and financial affordances. These interconnected systems inform a consumptive loop that is likely experienced with financial reward in mind, as suggested by the application's emphasis on winnings, yields, success, and its marketplace.

App Suspension or Departure

ZED Run users are unable to fully depart the community and broader blockchain environment in ways similar to the previous discussion of Axie Infinity. Account termination may occur as a result of a violation of the application's service, but this does not fully remove a user's digital footprint. Users may remove MetaMask's connection to ZED Run, delete payment information, sell all NFTs they have produced or acquired (or eat the cost of their unsold investments), withdraw funds, and log out of the game, but the account the user has created through this process will continue to exist. In an effort to better understand this, I contacted a moderator of the ZED Run Discord server and received a quick response telling me that my account could not be deleted. Asked if there

were any plans to allow for account deletion, the moderator informed me that they did not know but could relay my question to the development team. Before ending the conversation, I asked if this was a common feature of NFT games and was told that the NFTs created would be present forever. Users are not able to fully remove themselves due to the persistent nature of the game and its assets but can take steps to secure their accounts, empty their accounts of all assets, and simply quit playing.

Findings – Textual Analysis – Axie Infinity

Summary

Textual analysis of the Axie Infinity Discord server reveals a culture and community reeling from security issues and navigating ongoing feelings of distrust and uncertainty related to and beyond such issues. This lack of trust is antithetical to the adoption of the game, engagement with its markets, and the long-term interests of NFT games and blockchain technology. Axie Infinity scholarships may, in practice, contribute further to distrust or uncertainty present in the broader Axie Infinity community due to an exploitation of scholar motivations and needs and myriad power balances, with both being to the benefit of managers who act as owners of NFTs central to the Axie Infinity gameplay experience. Finally, this analysis considers users' knowledge acquisition, which is viewed as a means of finding success in the game and its associated marketplace. Ultimately, success in Axie Infinity is dependent on the successful navigation of entertainment and financial domains. Equipped with knowledge of the game and its intentions for users, these users are better able to navigate the uncertainties of the environment they ultimately experience. Although its existence as a game may

suggest an intended experience related to gameplay, the marketized qualities of the game appear to more significantly inform users' actions and interactions.

Distrust, Uncertainty, and Security

Feelings of distrust and uncertainty were highly visible during the analysis periods that informs this study. Fears born of the inherent risks associated with cryptocurrency games and markets were compounded by a breach in Axie Infinity's Ronin blockchain, which resulted in the loss of cryptocurrency roughly valued at $620 million (USD) (Van Boom, 2022). This event, as well as more commonplace instances of fraud, abuse, or scams, cast a pall over the Axie Infinity Discord server and resulted in an environment regularly defined by distrust, uncertainty, and speculation as to how developer Sky Mavis would react in the wake of the hack its game and market endured. This combination of external threats or abuses distracts from the core intentions of a game that presents users a bright, colorful, and family-friendly digital world wherein playful interactions serve marketized purposes. In the wake of the hack and despite the game's democratic vision and colorful characters, characteristics of distrust and uncertainty contribute to pervasive fear or unease and are reflected by distrust between users, uncertainty about the future of the game, security concerns related to the game and its marketplace, and ongoing discussion of the hack.

Distrust between users was present across the many analyzed channels and most often related to a potential for predatory scams or gameplay exploitation. What would be a wholly virtual asset in most other games becomes a desirable financial asset in Axie Infinity, with this shift in value and desirability likely informing the interests and actions of those who may attempt to defraud other Axie Infinity users or community members. In

an effort to control for potential risks, an abundance of cautionary messages were shared in the Axie Infinity Discord server in an attempt to warn users:

Reminding all aspiring scholars to please be very careful when choosing your managers. Interview and get to know them as much as they get to know you. Ask if they have their own servers. Talk to their scholars just to make sure they give them their pay. Utilize the search function in discord if the manager has been reported previously. Remember that we can only ban their accounts if they really are scammers. We can't give you back your SLP so please be selective and wise all the time. Thank you and goodluck!

- #Scholarship-Applications

Please beware of scam URLS and report if anyone send you potentialy harmful links. ⚠️ ⚠️ ⚠️

Please beware of staff impersonators in private messages! ⚠️ ⚠️ ⚠️

Please beware of fake staff sending you friend requests! Do not accept users you don't know! ⚠️ ⚠️ ⚠️

If someone sent you message saying he's a mod, you have to message me IMMEDIATELY! ⚠️ ⚠️ ⚠️

Axie Infinity moderators will NOT send you a message/friend request first ⚠️ ⚠️ ⚠️

- #Public

Messages such as these were shared on a semi-regular cadence, indicating a need for increased exposure and awareness. These messages in particular were shared by moderators and indicate efforts by the Axie Infinity team to better ensure the safety of its gameplay and marketplace participants. Additionally, these messages highlight some of the potential risks users face, which include an exploitation of digital labor, harmful links, and social engineering or moderator impersonation. These warnings relate to actions that users have control over and are not relevant to broader, community-wide hacks such as the one responsible for unsettling the peace of mind of Axie Infinity's users and Discord members.

Users took issue with those who may cheat, exploit, scam, hack, or otherwise break the game's rules, with the presence of such actions likely contributing to ongoing distrust and uncertainty in the game, its marketplace, and between users:

If you are defending cheaters/exploiters, you either are one or you are a fan of one.

- #Axie-Economy

In my experience the only people that tend to complain about punishments for breaking the rules are the ones breaking rules themselves and are scared they might get caught.

- #Axie-Economy

I don't ever want to talk here it's not safe. Every single time I message here I get added by hackers

- #Public

Hey can anyone get my axie back, my axie was hacked when my pc got a virus and made my axie gifted to someone I don't know

- #Public

These messages indicate a need for users to be able to navigate multiple instances of uncertainty or technical complexity that place them at risk of being defrauded. Users are responsible for the burden of these complexities and their impact and must learn to navigate them in order to find success in Axie Infinity's game and marketplace. Strategies to avoid such scams may relate to the development of additional digital literacy, the accrual of additional gameplay or marketplace knowledge, or increased communication with other community members.

Discussion of the Ronin blockchain hack and its impact on Axie Infinity was expressed across subthemes relating to investor experiences, user trust, and the future of Axie Infinity's marketplace. The perspectives of investors indicate the marketized nature of Axie Infinity, with users speculating as to how the hack might hinder investor confidence or contribute to reduced participation on the part of Axie Infinity's Scholars (hired digital laborers). User messages reflected an understanding of Axie Infinity as an experience predicated upon risk but viewed the hack as something well beyond the scope of users' projected risks when investing in Axie Infinity:

well, it's the security here that most are worried about. they kinda hurt the the confidence of the investors with this incident

- #Axie-Economy

Well most of us are looking from the investor side. From the scholars side, some

of my scholars seem to want to resign or refuse to play anymore as they see Axie

as well.. gone due to the hack. And they can't withdraw their funds either way

- #Axie-Economy

I'm heavily invested in Axie Infinity I almost forgot the saying do not invest more

than you can afford to lose. We just hope that this can be fix and the money can

recover or contact the hacker to have a deal with them thats the easy way of

returning the money quickly. In nft gaming time is so quick.

- #Axie-Economy

Investor concerns such as these were central to speculative messaging regarding the trust

of current and future users, as well as the future of the Axie Infinity game and

marketplace. For many users, there appeared to be genuine concern that other users or

investors would begin the process of withdrawing from the Axie Infinity environment

upon being able to do so:

Hard to say. Obviously many will liquidate and exit. But if SM is issuing a full

refund, that could go a long way toward avoiding people getting completely

spooked, and others might be ready to take advantage of the selloff. I'm surprised

prices on exchanges haven't gone off a cliff and I think that's a pretty good data

point.

- #Axie-Economy

I am sure some whales/investors are waiting for the bridge to open so they can move massive funds into ronin and scoop up cheep axs and assets.

- #Axie-Economy

guys do you think there will be a panic AXS sale? once it opens up

- #Axie-Economy

User messages suggest that the hack created instability in the Axie Infinity community by upending users' feelings of trust and certainty, with potential for this event to render long-term negative consequences relating to investor confidence and user participation. Users also speculated about what was driving the market, believing its future to be dependent upon the actions of "whales" who are better able to sway the course of the market as a result of their sizable ownership of relevant assets:

The longer this takes the harder it'll be to regain the trust of the crypto community. I think there are axie-maxies here. I am not one of them but you guys are right now going to keep Axie afloat. When all else jumps ship, keep on holding. I for one was always holding on to my axies because I can't stand to sell them at a loss. Now, I'm just gonna hold because they're too damn low :-(. I really think they should get a white knight SOON. Everybody will be second-guessing them now. Other hacks were resolved within days. This has been going on for more than 8 days now since the original hack.

- #Axie-Economy

Fear, uncertainty, and doubt (referred to as "FUD" in and beyond the Axie

Infinity Discord server) are points of interest directly outlined in the Axie Infinity

Discord server's rules, suggesting that the presence of feelings such as these are expected

in NFT games and markets. Interestingly, such expressions are discouraged and may even

result in a user being banned from the server:

> Constructive criticism is encouraged as long as it is clearly backed up by data or
> other sources of information. That being said, baseless criticism will be treated as
> FUD and is a bannable offense. For example: "slp is dead" and similar unfounded
> phrases are not acceptable.

> - #Rules

This suggests a culture of positivity wherein which users must present information that is

"clearly backed up by data". Examples of what a sufficient level of data might look like

are not made available to users who read the server's rules, necessitating their

enforcement and interpretation to be delegated to moderators. In an environment defined

by these characteristics, expressions such as these are both present and likely perceived to

be detrimental to the future of the game and its marketplace, as fear, uncertainty, and

doubt may stoke withdrawal from both gameplay and financial contexts.

There is an irony to the distrust visible in these communities, as adoption of

cryptocurrencies and blockchain technologies is informed by a distrust of centralized

institutions (Prasad, 2021). The same can be said of NFT adoption (Rabouin, 2021).

Public trust of fiat currencies and their adoption is informed by belief in the authority and

continued existence of centralized institutions. As blockchain games and technologies

may derive trust from current circumstances and speculation as to their potential, an upending of trust relating to the Ronin blockchain hack, as well as persistent distrust fostered by the presence of scams, exploitative business practices, and other uncertainties relating to game development or the outlook of Axie Infinity's marketplace, render Axie Infinity an odd case study wherein which the trust that is thought to maintain the game and its economy appear to sit on increasingly unstable ground.

Scholarships: Purposes, Power, and Exploitation

The following section explores the topic of Axie Infinity's "Scholarships", which exist as an intersection of play and labor and entail the play of the game by "Scholars" to the financial benefit of themselves and their "Managers" who often appear to garner a greater share of the rewards. Players who are unable to afford the Axie Infinity NFTs necessary for lucrative play may seek to acquire them temporarily through work as a Scholar. This section details the purposes by which users may seek to take part in an Axie Infinity Scholarship with attention towards imbalances of power and acts of exploitation inherent in such agreements. Through an understanding of users' motivations and purposes, one can begin to see how they are made to navigate myriad imbalances of power which may ultimately contribute to the exploitative nature of these business arrangements. These arrangements appear to regularly entail the exploitation of Filipino workers by outside parties, reflecting ongoing global efforts to acquire and exploit cheap labor through practices of outsourcing. Although not all users active in the Axie Infinity Discord are Filipino, those who provided some sense of where they were from (often detailed in the form of Scholarship application messages) commonly indicated that they

were from the Philippines, with some providing even greater detail as to their geographic location.

While outsourcing by companies occurs at a much larger scale, the outsourcing and exploitation occurring in and beyond the Axie Infinity Discord server typically involves an arrangement between a manager and however many scholars they have reached agreements with. In such arrangements, the managers adopt the role of a capitalist, positioning themselves as a dominating force responsible for the establishment of any and all expectations related to the scholar's labor, while scholars act in ways subservient to, and in the interest of, capital. In the context of this NFT game, users embody an interest in marketization by acting in ways consistent with the ideological preferences of markets.

Users' motivations for seeking scholarships vary, but tend to relate to economic necessity. The need for secondary or alternative sources of income was in numerous instances born of economic hardship relating to the COVID-19 pandemic. In these messages, users described interest in supporting themselves and their families with a potential for managers change scholars' long-term financial outlooks:

> I don't have work due to the pandemic so I have all the time to play this game and maximize your team potential
>
> - #Scholarship-Applications

> Given the opportunity, this will be of great help not only to me, but also to my family. In the midst of the pandemic, we are still struggling with financial

expenses every day as we still lost our jobs. I guarantee that I am trustworthy and very capable of learning everything to be able to contribute so much to the team.

- #Scholarship-Applications

If I can choose to be a part of it as a scholar, it will serve as a big help for me especially as a bread winner, personal needs as well as the needs of my family who are struggling on a daily basis. particularly during the pandemic we face.

- #Scholarship-Applications

Thank you for this opportunity this will be life changing for me if I will be selected.

- #Scholarship-Applications

Reason You Want To Join This Scholarship: Need funds for my college next year and to help my parents for house bills etc.

- #Scholarship-Applications

It is hard to find job nowadays due to pandemic. Daily needs are important. I wanted to have at least a work that could definitely help me ti survive in this pandemic. I also want to help my parents in paying our bills.

- #Scholarship-Applications

Searching through the #Scholarship-Applications Discord channel reveals that some of these messages, partially or entirely, were shared more than once by their original author and were even used by other users, albeit for fairly brief periods of time. In an effort to

find employment opportunities, users may speak to their need for work, or their fastidiousness, honesty, or industriousness:

> Because you can trust me more than you expect and I will work hard and persevere to play and get The daily quota I will also follow Your terms and conditions I will never be your headache. I also want to help my family and other people but before all that I prefer to help your team and make you feel that I am always there to support youfist
>
> > - #Scholarship-Applications
>
> I want to be one of your scholar because i'm independent, hardworker and honest. My dedication of grinding in any games is very high and i will assure you that you will benefit well of my skills. You can trust me in anyway.
>
> > - #Scholarship-Applications
>
> In Axie Infinity you must be patient and a hardworker.
>
> > - #Scholarship-Applications

Mentions of how hardworking or honest an individual was are reminiscent of McCloskey's (2006) beliefs that markets cultivate integrity, honesty, and responsibility reflect a view of markets as being beneficial to moral society (Fourcade and Healy, 2007), however it is the perspective of this study that such statements contribute to the dehumanization of their authors, who may be reduced to mere commodities (Polanyi, 2001) by the calculative perspectives held by managers interested in efficiency and financial reward. With this in mind, interest in scholarships related almost entirely to

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financial interests. Managers want to make money off of scholars playing the game, while scholars want to make money in a game where access is too expensive for them to afford. The gameplay experience is a necessary component of the process, but it is not as if potential Scholars are motivated by accessibility to the core Axie Infinity gameplay experience a Scholarship affords.

Given the necessity of some form of income to the survival and wellbeing of potential scholars and their families, it is not surprising that such a need lends itself to power imbalances wherein which managers hold a greater deal of leverage over the business arrangement than do the users who seek to reach a Scholarship agreement. There are numerous imbalances that inform interactions taking place in and beyond #Scholarship-Applications. These include imbalances of information (given, asked for, and expected), of economic power or authority (wealthy managers and scholars seeking supplementary income), and of server utility or privilege (the server caters to English-language users). In the case of informational imbalances, users provide personal details including contact information (Telegram, Whatsapp, Gmail, and Vier accounts to name a few), ages, geographic locations, prior gameplay or scholarship experiences, and in some instances even their civil or relationship status.

Although some of these elements may align with community rules, an interest in receiving, or a pressure to provide, one's relationship status feels unprofessional at best and grisly at worst given the presence of sexual misconduct occurring in the Axie Infinity community wherein which scholarship managers have been known to request explicit content from prospective scholars (Axie Infinity, 2021). While various details are often requested of scholarship applicants, scholarship managers appeared to be relatively

inconsistent with regards to the amount of information they provide, in some instances detailing the benefits a scholar may receive, or refusing to provide additional details in others:

> What we offer:
>
> - Fair percentages, 50% / 50% for SLP earned.
>
> - 100% of the AXS on the Season go for the Schollar!
>
> - Your little school in less than 24 hours!
>
> - Internal teaching modules, created specifically to serve the audience that is coming to Axie Infinity.
>
> - Updated meta teams.
>
> - Possibility of exchanging teams directly with the managers.
>
> - Career plan, where your performance will determine how far you will get.
>
> - Internal championships with prizes for community participants.
>
> > - #Scholarship-Applications
>
> Don't ask me for lineups and don't try your luck and waste each other's time if you can't provide the information.
>
> > - #Scholarship-Applications

User applications and other textual information are only one part of the scholarship process, as managers also conduct interviews to better understand potential scholars' experiences and wants. These interviews are conducted beyond the context of the Axie

Infinity Discord server in context where community rules are not as easily enforced. As a result, users seeking potential employment are made to forgo the protective guardrails that inform user participation in the Discord server.

Imbalances of economic power or authority relate to differences in the split of earnings (which appear to most often entail a 60/40 split wherein the manager receives a greater share), a lack of clarity as to the expectations of managers, and the threat of job loss that may follow a scholar's inability to meet the established quota. These imbalances are represented by the following quotations:

We offer Good teams with 60/40 split ratio.

- #Scholarship-Applications

Scholars may be able to increase their share of SLP beyond 50% through high performance

- #Scholarship-Applications

Conditions: daily quota: 40SLP. Failing the daily quota 3 times in the same two weeks could be a reason to lose your scholarship.

- #Scholarship-Applications

The division of slp and axs is 50%, regardless of slp earned but if they stop playing for more that 3 days in a row without warning, they will lose the scholarships

- #Scholarship-Applications

If you dont play for 2 days, I wont pay.

- #Scholarship-Applications

In these arrangements, scholars are motivated to make money to support their families, providing managers their labor. At the same time, manager motivations appear to be consistent with those of the investor, with managers seeking to benefit financially from asset ownership. This arrangement and supporting quotations indicates an imbalance of economic power or authority wherein managers benefit more from the exchange, set the criteria by which success or effective performance will be measured (sometimes doing so with little detail), and raise the threat of job loss if a scholar does not work in ways that maximize the financial rewards (working long hours, reaching quotas or performance requirements) that are disproportionately experienced by the managers, whose contributions typically do not appear to go beyond ownership of NFTs necessary to play the game.

Finally, analysis of the Axie Infinity Discord server reveals imbalances specific to server utility or user privilege. The #Rules channel outlines that the primary language of the server is English, and suggests that non-English discussion be relegated to the server's range of international channels. Although enforcement of this rule appeared to be inconsistent, a tendency for scholarship applicants to indicate English-language proficiency suggests that scholar success may oftentimes be dependent upon hegemonic cultural forces. Ultimately, the needs of Axie Infinity's scholars, the interests of managers, and differences in privileges experienced by the two groups lend themselves to the exploitation of scholars, who are made to work long hours for a smaller portion of earnings, and are expected to graciously submit their personal information, testimonies, and promises of honesty and hard work to discerning managers.

Experiences Learning the Game and Market

Player knowledge of the game and its marketplace are necessary to successful interaction with Axie Infinity, which is likely to be measured by gameplay and financial results. In their efforts to learn, Axie Infinity Discord participants seek information from one another (often in the form of direct questions or requests for information) or indicate efforts to better understand the game through the use of external resources such as video tutorials or written guides. At a glance, player interests in understanding the game appeared to most often be informed by external resources, while player interests to understand the Axie economy took the form of user questions and answers.

> I have watched streamers and tutorials in youtube on how to play axie. I have read all the rules and i already understood the gameplay and strategy of this game. I know that i am ready and willing to grind for hours to play this game.
>
> - #Scholarship-Applications

> Check out youtube vids first please or research first on the kinds of builds you're comfortable with before buying
>
> - #Public

> Note that people might recommend you to buy their overpriced axies in the marketplace. So its better to use the filters in the marketplace and compare their axies to others so that you'll be safe and might find a cheaper deal instead.
>
> - #Axie-Economy

Interests in understanding the game and market are indicative of the intertwined nature of the two, as success in one domain is likely to be dependent on success in another. In ways consistent with Zaucha and Agur (2022), users again employ a language of markets in an effort to educate others or demonstrate their own understanding of the markets with which their financial success is dependent upon:

> If crypto bull market continues, we're golden. If the macro bear awakes now... it will be sad.
>
> > - #Axie-Economy
>
> It's a good way to drop it down a bit - people see the dip, panic, sell more, and easy buyback for them
>
> > - #Axie-Economy

Ultimately, success in Axie Infinity is dependent on the successful navigation of what would be, in more conventional games, two entirely separate domains wherein which user engagement occurs. Equipped with knowledge of the game and its intentions for users, these users are better able to navigate the uncertainties of the environment they ultimately experience. Efforts to navigate tensions between entertainment appeals and financial interests appear minimal, as vocal users appear to be motivated most by the financial benefits tied to gameplay. Although its existence as a game may suggest an intended experience related to gameplay, the marketized qualities of the game and its users suggest an intended experience that adheres more closely to market interests than one might first assume.

Findings – Textual Analysis – ZED Run

Summary

      In play-to-earn games such as ZED Run, in-game experiences and external

rewards or actions inform one another. If a user succeeds in-game by winning a race or

breeding a desirable NFT horse, they may also succeed beyond the game by winning

money through competition, or through interaction with the game's associated

marketplace. Ultimately, the ZED Run experience is dependent upon the interplay of

designed gameplay systems, the functionalities of external marketplaces, and the

uncertain and perhaps even random behavior of players, whose actions, decisions, or

investments may render impacts of varying magnitudes. In such contexts, users must

navigate uncertainties related to designed and obfuscated systems, as well as the

uncertainties of markets. Although not all aspects of users' experiences are intended,

meaningful portions of these experiences are informed by designs that intend to inform

and guide user interaction. Interaction with these designed systems, as well as an interest

in improving one's understanding of the application and its associated marketplace,

appear to be primarily motivated by interest in financial reward and secondarily

motivated by gameplay appeals. Although the gambling-like nature is likely to inform

repeat play, users stated purposes more commonly related to a potential for profit than

thrills associated with gambling and gambling-like engagements. However, it must be

said that the appeals of gamble-play may be less apparent to users upon reflection despite

informing their interaction with the application. Possibilities such as this speak to the

subtle and even insidious nature of gamble-play engagements, which suggest to users that

they hold greater control over processes informed by randomness than they actually do.

Dangers to users contained within the ZED Run game and marketplace may entail a

tendency to chase rewards, to mistake luck for skill (or vice versa), or to assume that

through the acquisition of additional knowledge, one may also acquire greater control

over one's ability to predict potential outcomes, if not the outcomes themselves. It is the

close relationship of financial interests and investments to a gaming and gambling

environment that risks fostering an increasingly gamified approach to other financial

endeavors.

Understanding How the Game is Played and How Money is Made

User efforts to develop an understanding of ZED Run's gameplay, as well as the

processes by which value is created or money is earned, were central to the experiences

of vocal users present in the ZED Run Discord server. Although messages present in the

server's #Getting-Started and #Rules channels suggest approachable experiences focused

on gameplay interests, cautionary messages detailing a need for participants to fully

understanding the game suggest an awareness by server moderators that more

experienced members may prey upon the inexperience of newer users:

> ZED RUN is the future of horse racing! All you need is skill and strategy needed
>
> to create a long-lasting legacy on the racetrack. Get started by following the steps
>
> below:
>
>   - #Getting-Started
>
> ✅ Have fun and stay true to the spirit of gaming
>
>   - #Rules

✅ Please give new members a grace period to absorb the mechanics of ZED
before approaching them with deals.

- #Rules

Knowledge of gameplay and financial systems is positioned as being essential to successful interaction with ZED Run. This finding is consistent with language present in the application's terms of service. However, it must be stated that all three of these messages are communicated by the ZED Run team. Additionally, although player knowledge does inform a player's experiences with the application, a need to understand the game does not lessen the extent with which it meets the requirements of a gamble-play experience. An understanding of the rules of blackjack lessen one's understanding of blackjack as a gambling game. A similar argument can be made for ZED Run's horse races.

There is some credibility to guiding statements related to the importance of gameplay and market knowledge. Given the complexity of ZED Run and other NFT games, access to the gameplay environment does present issues to users who may look to one another to improve their understanding. Knowledge of how to access the game typically related to its associated marketplaces or financial mechanisms:

So I have two wallets already made in MM. I have been logging in with one for quite some time. How do I use my other wallet address in MM to get another stable?

- #Beginner-Chat

I am trying to set up a magic link account, is this still a thing? It seems to direct

me towards metamask every time I try...

- #Beginner-Chat

So im trying to buy a horse from hawku does anyone know why it constantly

reloads?

- #Beginner-Chat

Also I'm a bit confused, are the horses in ethereum or polygon, cause I see that

you can buy them with wrapped eth but not sure if it's a wrapped eth in polygon

- #Beginner-Chat

Given the game's relationship to financial reward, users also sought to better understand

the game through direct questions to one another or through the use of external resources.

At a glance, many of these messages related to the game's tournaments, which are a more

lucrative gameplay format. However, discussion of gameplay strategy was present across

user inquiries:

Hi guys. Can somebody give me a quick brief on how the tournament system

works. For example how you get further on: how many wins you need to get

threeough etc etc"

- #Beginner-Chat

I think most of us read it that way based on comments in Gen Chat. Whoever is

writing the guide could really use a proofreader who is familiar with the game.

Wording is often confusing & not straight forward. There's a much easier way to

explain that the QF will be a 1-race knockout at a random distance within the

funnel you qualified for.

- #Tournament-Discussion

I managed to make it work by following the article hawku wrote.

- #General

User inquiries regarding how to access the application or play the game were

commonplace and appeared to be asked in the interest of ZED Run's financial rewards.

To this end, user interest in the process by which money is made (or value is created)

appeared to be a central component of user discussions.

Moneymaking processes, and user efforts to understand these processes, related to

user negotiations and salesmanship, ZED Run's breeding mechanic, and a discussion of

market strategies. Given the presence of multiple digital marketplaces related to ZED

Run, negotiation between users was not entirely necessary. However, activity occurring

in channels related to the sale of ZED Run's NFT horses do allow for user negotiation.

Although some user messages function in ways similar to classified ads that might appear

in one's newspaper, others included conversational or persuasive language and could be

characterized as efforts towards salesmanship:

Selling my lineup of top tier paid racers. Top end U shapes that outpull/pull the

same odds as mane event/moonlight graham

- #Selling-Raced

You do not want to miss this stud in the farm, good lineage, offspring with 15% win rates. Check out Bit Bronco Breeding!

- #Stud-Farm

Hey mah really need the rest of my horse gone from my stable the bute gen z8 make is up for .32 has a 20% return for .02 profit with really good offspring. and the legendary bute mare is up for .032 has a return of 30% with .04 ETH profit

Horses are well under what there worth so you'll be getting a good deal

Also the bute gen is half the price off the rest of the other horses around me he's stats and breed

Happy to negotiate a deal for the 2 as there a good breeding pair

- #Selling-Unraced

The presence of user negotiations was further reflected in the server's rules, which prohibit more aggressive sales tactics. Specific details as to what would be considered aggressive or pushy are not made clear:

❌ Any aggressive or pushy deal tactics are prohibited.

- #Rules

Messages such as these indicate the centrality of ZED Run's marketplace to its users' experiences, and capture the application of conventional practices of negotiation or salesmanship to emerging media and financial assets.

Breeding of ZED Run's digital horses was another means of making money. User understanding of the breeding system and its relation to the gameplay and market was important to users' success occurring in and beyond the gameplay environment. User inquiries or suggestions related to breeding and market strategies exemplify users' financialized or marketized mindsets. Further, these inquiries indicate imbalances in users' interests, which appear to lean more closely to potential financial rewards than the gameplay experiences central to one's interaction with the ZED Run application. Select user remarks related to breeding, profitability, and general market strategy exemplify these findings:

Hi All, just a quick Q, How are people finding breeding in terms that is there any profitability at all? appears all horses are being sold atleast 30% under breeding costs making it virtually pointless to breed them unless you are just hoping to get a good runner. im just trying to understand how this is working

- #Beginner-Chat

i'll give you the tl;dr: look for a horse that can make you profit down the road (unless you literally just want to see a horse run). different ways of going about that; up to you to strategize what you want to do

- #Beginner-Chat

its ok for larger stables that can do stuff like breed them for more mediocre horses but for a small stable having a horse that can't race is just an expensive JPEG

- #Beginner-Chat

Users' understanding of how the game is accessed and played, as well as how one profits from ZED Run, inform an acquisition of gameplay and marketplace knowledge between users and from external resources. Tensions between entertainment opportunities and financial considerations appear minimal, as users appear to regularly operate with profit motivations in mind. Ultimately, this relationship between gameplay and marketplace interactions is a central feature of the ZED Run experience, with the two spheres of interest impacting one another.

Intertwined Games and Markets

The intertwined nature of ZED Run's gaming and marketplace experiences was reflected across user messages occurring in the application's associated Discord server. The close association of these spheres of interest is a product of design. Such an arrangement is true of ZED Run, Axie Infinity, and various other NFT games or projects. Although such arrangements are not wholly unique to ZED Run, analysis of users' messages elucidates how exactly users experience a melding of designed (the game and all other technologically-mediated elements of the ZED Run experience) and user-driven systems (e.g., the game's external marketplace and economy).

The impact of gameplay changes or updates on the ZED Run marketplace represents additional uncertainty experienced by users beyond ongoing, player-driven uncertainties specific to marketplace interactions or the various instances of uncertainty or randomness present in everyday use of the ZED Run application. User messages indicate a tendency for users to be adversely affected by gameplay changes that alter the viability of certain NFT horses, and by extension, users' purchasing or breeding decisions:

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Ya I have a lot of good horses that stuck in class 1-2 that would have made be good money in the old system

- #General

Ima have to give up on zed soon. Theres no way most my horses went from 1st place and some even 1st place paid to 11th-12th every time. Algorithm flew out the window for me 😣

- #General

I wish. Just wanted to breed mid-tier capable horses since my starting investment was small. My gameplay is phased out with this class point system

- #General

WTB a stud to breed with my Z6 legendary Szabo… would be her first breed under the new breeding changes. She has top 10% speed in all sprinter distances. If you think you have a good match dm me and I'll give a look

- #Want-to-Buy

In response to changes to the game or to the broader ZED Run marketplace, users may adjust their strategies:

My issue is that the market stalled and I kept breeding like a rabbit. Now I gotta consolidate or I can't manage the talent well enough.

- #General

Users understood the necessity of the core gameplay experience and its relevance to external financial interests. Although many appear to prioritize profit and reward above ZED Run's gameplay, positive interaction with gameplay systems was believed to be an essential component of the game's appeal. User engagement may be driven primarily by financial interests, but it must be noted that "primary" interest in financial reward does not entail a purely financial experience. Ultimately, the game must provide some foundational level of entertainment to garner attention in the first place given its place amongst an increasing number of play-to-earn games that compete for the attention of ZED Run's users and others. The following user message captures many of these contrasting appeals and features additional speculation as to how the game's long-term vision might be helped or hindered by their balancing:

> To me if people are having fun and making money. They will take those profits and buy more horses which helps everyone. So even if they have that 1 lotto horse that may result in them investing more into game whether that is breeding or buying horses in effort to build out stable. What you have is a bunch of people buying terrible horses finding it stinks while losing money and leaving game. User retention is going to be huge hopefully through education and getting rid of the excess garbage on OS will be a start.
>
> - #General

Whether it is to the interest of users or not, gameplay and repeat play function as central features of the everyday application experience. Users' stated purposes are often of a financial character, while their actions might best be likened to gambling or gambling-like engagements. The danger rests in a subtle blending of the two, and in the context of

language that obfuscates the actual user experience through emphasis on skillful play and a development of user knowledge. This blurring of contrasting interests risks fostering an increasingly gamified approach to finance, markets, and other uncertain circumstances present in daily life.

Conclusion

Goggin's (2022) discussion of gambling games and their contributions to a normalization of risk-taking within financial contexts communicates an ability for seemingly-trivial objects to render social, cultural, and financial impacts in ways that may at times go unnoticed. Such trivial objects are at the core of this study, with the cute creatures of Axie Infinity and the polygonal horses of ZED Run exemplifying Goggin's findings. Despite an expectation of triviality likely derived from their existence as gameplay assets, these NFTs have the potential to impact the financial lives of participating users in the games' respective communities and contribute to a continued normalization of risk-taking present in daily life.

Axie Infinity's intended experience blends emerging media and financial systems in ways that might at first appear peculiar. Developer Sky Mavis aims to create a democratic gameplay environment wherein users might profit from their play. The developers intend for their game and market to be closely connected, and for their community members to be polite in their interactions with one another. In the case of ZED Run, users are intended to be a part of a creative and collaborative community where risk and reward are both central to the experience and encouraged. Similar to Axie Infinity, the interconnectedness of ZED Run's game and market is by design, reflecting

the intentions of developer Virtually Human Studios. In both contexts, skill and gameplay are meant to inform user experiences.

In practice, the actual user experiences of Axie Infinity and ZED Run are fraught with issues. The process through which individuals may first access either community requires the sharing of considerable amounts of personal information, as well as some navigation of the complexities of the games and financial systems themselves. Put simply, the registration processes for both games are defined in part by their convoluted natures. Additionally, the Axie Infinity community is plagued by feelings of distrust and uncertainty, as well as the presence of exploitative business and financial practices exemplified by the game's manager-scholar dynamic, wherein external disadvantages experienced by digital laborers contribute to exploitation within the gaming community. In the case of ZED Run, users' experience largely financial pressures from the gameplay environment and from one another, as a meaningful portion of the discussion related to financial interests, or strategies. Efforts to navigate the tensions of the applications' entertainment and financial interests were not entirely clear. However, inclinations towards financial problem solving or knowledge acquisition indicate a prioritization of financial interests, possibly to the detriment of entertainment or gameplay appeals similar to findings present in Zaucha and Agur (2022). Although gaming and gamble-play features are sure to influence the consumptive habits of the applications' users, analysis of application features is limited in its ability to determine such effects, while the supporting textual analysis is dependent upon users' understanding of their own actions which may, at times, be informed by cognitive biases or subconscious thoughts or wants.

Previously, this work posited that the interests of capital (private property, accumulation, consumption, etc.) act as a form of external pressure which may inform users actions occurring in the NFT applications. Explorations of users' motivations and intended experiences confirm such assumptions, with user messages present in the Axie Infinity Discord server capturing a widespread need for individuals to find means of supporting their families through gameplay or the acquisition of digital assets. Although the appeals of gaming and gambling systems are likely to inform repeat play, overwhelming discursive interest in financial strategies and agreements, as well as user efforts to acquire gameplay and marketplace knowledge, undermine the effects of these contextualizing features. Users are likely to continue to play the games due to a combination of financial and gameplay appeals, but the extent with which users' interests in gameplay serve as motivating factors remains somewhat unclear. The same cannot be said of financial interests, which were present across the Axie Infinity and ZED Run Discord servers. Although there exist some indications that users may be motivated to acquire NFTs for the purposes of collecting, or the enjoyment of a character or unit's competency, the monetary value of their assets (Park and Lee, 2011) and their ability to contribute to financial gains through gameplay engagements appeared to be primarily responsible for the adoption of the game's NFTs. Users may also be motivated to reflect the values of individuals who have found success or who manage rentable assets. Attempts to reflect such values are indicated by appeals to honesty, ability, and hard work often associated with a neoliberal ethos (Johnson, 2018).

These values, coupled with the myriad instances of labor exploitation occurring specifically in the Axie Infinity context, reflect centuries old patterns of exploitation

enacted by individuals and organizations from wealthier nations to the detriment of

poorer nations and their citizenry. In the context of Axie Infinity, efforts to establish

financial advantages in the pursuit of profits are made possible by an exploitation of labor

that is made inexpensive by differences in currency valuations, made accessible by

increased access to digital devices, made available by a combination of global financial

uncertainty and the economic impacts of the COVID-19 pandemic, made possible by a

lack of user protection and governance furthered by the platforms themselves, and made

permissible by the inaction of governments, whose regulatory efforts have not kept pace

with the evolving character of nascent technologies and financial instruments (Strange,

1986). This inability to keep pace is exacerbated by an active lessening of regulatory

oversight on the part of legislators (Prasad, 2021; Rajan, 2010). These variables are

conducive to an environment wherein an othering of labor abroad might occur, and an

exploitation of this labor might be justified.

Issues with an exploitation of labor are of a moral character that is not likely to be

shared or realized by Axie Infinity's Managers. In the context of one's business

endeavors, efforts to find advantage while abiding by legal requirements are assessed

within the realm of results and business savvy. If the laborers themselves might

exemplify through their Scholarship applications their capacity for honesty, their ability

to engage with gameplay systems successfully, and a willingness to work hard, they too

might be afforded the opportunity to have their labor devalued by those who seek passive

income through the ownership of assets whose value is derived from perceptions of their

worth in intertwined marketplace and gameplay contexts. Even if the laborers stand to

benefit on a level greater than they would were they to seek local or more conventional

forms of employment, unequal power dynamics present in the Manager-Scholar make for a reality that is potentially ugly and exploitative. Compensation of labor rarely reflects the real value generated by that labor, and the work of Axie Infinity Scholars is no different. Were this not an option, the lucrative potential of Axie Infinity becomes far less enticing as managers would need to log the necessary time to play the game and generate the productive components present in gameplay systems and external marketplace systems.

This thesis provides methodological contributions related to the study of emerging media and finance and the collection and analysis of textual data, while further demonstrating the benefits of the walkthrough method as described by Light, Burgess, & Duguay (2018). Through its acknowledgment of a blurring of gaming, gambling, and finance, this research advances a connected or overlapping view of economic and social contexts, as opposed to understanding the two as entirely separate domains of interest and inquiry. Future research should continue to explore this collapsed view of economic and social behaviors or characteristics with particular attention towards this collapse within the context of emerging media, as this view is beneficial to one's understanding of an increasingly financialized media and cultural environment. Practically, this work further explores and scrutinizes non-fungible tokens and their associated applications and in doing so call attention to users' experiences while informing potential users and academics about the characteristics of these financialized gameplay contexts. Although scholarship on non-fungible tokens has become more prominent since the outset of this project, it is necessary to continue to further explore this topic, as doing so has the

potential to elucidate myriad cultural and economic findings that are likely to be relevant to other media and cultural environments beyond that of NFTs.

Ultimately, experiences with Axie Infinity and ZED Run are dependent upon the interplay of designed gameplay systems, complex marketplaces, and users' behaviors. As a result of such overlap, users are granted additional control over the outcomes and may, through no fault of their own, believe that processes of knowledge acquisition or gameplay skill might mitigate potential losses or contribute to financial rewards that are both born of randomness, and representative of gamble-play engagements. It is this close relationship of financial interests and investments to a gaming and gambling environment that risks fostering an increasingly gamified approach to other financial endeavors present in daily life. Through a blurring of gaming, gambling, and finance, the affordances of media are applied to an acceleration of risk-taking and an adoption of alternative financial assets. Although harmless in their appearances, the potential harms of both objects of study rest in their ability to influence users' understandings of how healthy markets and market participants are meant to behave.

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