

# Accounting in the Virtual World: Legal & Ethical Challenges in the Metaverse Economy

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## *Abstract*

*The metaverse is a shared, 3-D, immersive virtual space where individuals, groups, and organizations can interact with each other. It is expected that over the next several years, the growing popularity of metaverse will transform the business landscape. For accountants, the economics of the metaverse involving trade in virtual assets such as non-fungible tokens will present new types of ethical challenges. This study adopts a content analytic approach to find that the metaverse is currently highly decentralized, presenting unique challenges in enforcing traditional laws and regulations in the virtual world. We identify legal and ethical issues related to intellectual property rights involving the creation, ownership, and protection of virtual assets, and subsequent tax and auditing implications associated with the ownership of these virtual assets.*

## **Why discuss the metaverse?**

Over the last few years, the metaverse has gained increasing attention in the business world and among the public as a technology that will transform the way we learn, work, entertain and collaborate with each other by transcending physical distances and enabling highly immersive experiences. Broadly defined, the metaverse is a simulated virtual environment where individuals can interact with each other and engage with different virtual entities. Here, entrepreneurs can start virtual businesses, economic avatars can engage in transactions of virtual assets, artists can host their creative works in a virtual space, and instructors can connect with students in virtual classrooms.

At present, much of the foundation of the metaverse is being built through games, where players can participate in building, connecting, and

exploring the virtual environment, while at the same time spending currency on monetized activities. Although companies like *Roblox*, *Epic Games* and *The Sandbox* are currently bringing immersive social experiences to users, it might take another 15-20 years to fully bring to life the various technologies and features we envision when thinking of the metaverse.<sup>1</sup> For the metaverse to be fully realized, adoption and diffusion of technologies like 5G, hardware and software related to virtual realities, and peer2peer technologies need to be more widespread.<sup>2</sup> In this context, firms like Nvidia have taken the lead by launching its Omniverse cloud services in 100 countries in 2022 to power the metaverse by enabling users to quickly design and collaborate on 3D workflows.<sup>3</sup> Nvidia's CEO Jensen Huang is optimistic about the future of the metaverse and estimates that the metaverse can create an economy that is larger than our current economy.<sup>4</sup>

As the metaverse continues to evolve as a significant space for economic activities, it raises important legal and ethical challenges for financial reporting and accounting. Such challenges concern virtual assets like non-fungible tokens and digital goods that can be bought and sold in the metaverse, but present difficulties in terms of valuation, recognition, and reporting as they incorporate greater information asymmetries and are linked to higher risk profiles. It also involves accounting for goodwill, marketing expenses, and other types of intangible resources in the virtual environment that do not have physical substance but bring rights and economic benefits to their owners.<sup>5</sup> In this study, we ask: *What are the key legal and ethical challenges related to financial reporting and accounting in the metaverse?* We investigate this question using a grounded theory approach where we start with a relatively broad open-ended research inquiry, collect relevant qualitative data from newspapers, industry reports, scholarly articles, and opinion posts to generate a textual corpus, and then analyze the corpus thoroughly to identify emerging themes.

This approach where theories emerge inductively from the data is appropriate for our context because currently little is known theoretically about the metaverse. Today, the metaverse lacks clear regulatory frameworks that render it difficult to ascertain the accounting treatment of virtual assets. Moreover, the absence of a centralized authority in the metaverse makes the enforcement of any newly created regulations problematic. Further, traditional accounting standards may not be sufficient to address the unique characteristics of digital assets in the metaverse. Such a deregulated and unsupervised environment is conducive to fraudulent activities like money laundering and fraud. Relatedly, a prior study found that any organization could be vulnerable to the risks posed by the metaverse and recognized the importance of the roles of regulatory bodies, financial authorities, board of

directors, and fraud investigators in mitigating and managing these risks.<sup>6</sup> As the metaverse develops rapidly, there have been ongoing discussions and debates about addressing these issues, and ensuring transparency, accountability, and trust in the virtual universe. Our grounded theory perspective allows us to examine the finer nuances involved in these conversations, and to locate areas of consensus or common ground.

The rest of the article is organized as follows. The next section provides more details about the background of the metaverse and describes the state of extant literature. The subsequent section explains our analytical methods and the data. Finally, we present the results, and discuss the theoretical and practical implications of this study.

### **Understanding origins of the metaverse and issues relevant to the accounting profession**

The concept of metaverse has several different but related definitions. The term “metaverse” is a combination of the words “meta” meaning “beyond” and “verse” meaning “from universe” originally coined by Neal Stephenson in his book *Snow Crash* published in 1992. Matthew Ball, the author of *The Metaverse Primer* defined this concept as a quasi-successor state to the mobile internet. Meta (previously known as Facebook) CEO Mark Zuckerberg has described the metaverse as an embodied internet where billions of computers are interconnected at the same time. Others have envisioned the metaverse as a form of Web 3.0 or three-dimensional internet with the three dimensions including the physical layer, the digital information layer, and the spatial interaction layer.<sup>7</sup> As such, the metaverse is generally conceived as a virtual universe that combines virtual reality (VR), augmented reality (AR), and other emerging technologies like blockchain and cryptocurrencies to offer users a high degree of interoperability where they can easily transition from one virtual world to another while retaining their identities and virtual assets.

Many people have likened the metaverse to a more advanced version of *Second Life*, a virtual world launched in 2003 where users could create avatars, purchase virtual land, and engage in social activities, but had serious limitations in terms of graphics, user experience, and scalability. In *Second Life*, materials to build objects were freely and infinitely available, but users were constrained by the amount of land (translated as server space) owned. When it comes to accounting, the structure of virtual worlds like *Second Life* and the metaverse make them unsuitable for conventional economics based on scarcity (although scarcity can be artificially designed in virtual worlds using today’s blockchain technology, but platforms can increase availability of land and other virtual assets if they want), and therefore, accountants may

have to rethink how to achieve their goals, and the ways in which traditional functions like measurement, valuation and depreciation would have to evolve.<sup>8</sup>

Accountants and auditors have long realized the importance of virtual worlds to their profession. For example, in the 2000s, the CPA Island was established in *Second Life*, where CPAs, educators, and students from around the world joined together to form the *Second Life Association of CPAs* (SLACPAs) to explore the potential of virtual worlds for real-life accounting applications and networking (CPA Island was later discontinued). They set up buildings or hubs on the CPA island that provided islanders with informational resources, meeting pavilions, and the opportunity to host or attend exhibits, expos, and conferences. At that time, there were several ethical and legal issues concerning the economy of *Second Life*, including the problem of gambling and the challenge of unregulated banking operations because multiple banks reneged on the unsustainable high interest rates on the deposits.<sup>9</sup> Moreover, the currency of *Second Life* called Linden Dollars (L\$) could be exchanged for real-world currencies, which raised legal questions about the accounting treatment of transactions between the real world and the virtual world. Accountants also faced difficulties in assessing ownership rights, valuation and disclosure requirements for virtual properties owned in *Second Life*. Such assessments needed to be done while maintaining confidentiality of client information and complying with data protection regulations.

Theft of virtual assets is quite common in cybernetic worlds. Moreover, there is significant variation in how firms tackle such unethical behaviors-*CCP Games* warned participants to accept the risk of virtual asset theft, while at the same time monitoring the game environment for player actions that violated its terms of service.<sup>10</sup> In contrast, *Second Life* decided to avoid further risk to virtual assets by closing all its banks after fraudulent schemes caused its users to incur significant losses. To tackle these issues, as early as 2013, scholars had called for the development of appropriate systems that encompass the dynamics of both the real world and the virtual world.<sup>11</sup> In another illustration of accountants and auditors' early recognition of the importance of the metaverse, accounting firms utilized virtual worlds to provide information, conduct training, and make connections with clients. In 2009, Ernst & Young used a simulation in the virtual world to enhance the inventory count training of entry-level auditors.<sup>12</sup>

Many of these issues and practices have further evolved over the last three years following the COVID-19 pandemic because social distancing restrictions sparked a renewed interest in using the metaverse as a platform for entertainment, education, business, and governance. Andrew Kiguel,

CEO of tokens.com observed that prices of digital real estate went up by 400-500 percent in a matter of months.<sup>13</sup> Recent developments in blockchain technology have also resulted in a rejuvenation of the metaverse by drastically reducing transaction costs for traveling from one virtual world to another and engaging in economic activities.<sup>14</sup> Blockchain technology now allows participant's credentials to be continually held and protected enabling the avatars to travel inside various worlds with "verified but confidential identification, qualifications, history, portfolio, credentials, so to enable immediate and protected commerce with other participants."<sup>15</sup> In the next section, we detail our method of collecting data on ethical issues in the metaverse relevant to accountants and auditors from articles published in various sources between January 2020 and March 2023.

### How we collected the data

Due to rapid changes in technology in recent years, traditional data sources are often inadequate to answer deep-level questions in nascent or emerging research areas where measurement is unclear, and changes take place rapidly in a highly complex system. This study uses data from newspaper articles, industry and magazine reports, opinion posts, and scholarly works to incorporate multiple perspectives on the ethical challenges in the metaverse as they relate to accounting and auditing, verify evidence from diverse sources, and triangulate the results. The data from multiple websites were compiled into a corpus, which was analyzed using the software NVivo. The analytical approach in this study relied on grounded theory, which is a particularly useful method for examining an understudied empirical phenomenon.<sup>16</sup> There is not much extant organizational literature on the metaverse, and the economics of trade in the metaverse is even more of a nascent field. Therefore, grounded theory is particularly useful for identifying emerging issues of concern in this area.

To collect our data, we first searched for relevant journalistic and scholarly sources using search terms like "metaverse" + "accounting", "metanomics" + "accounting", "Second Life" + "accounting", "Roblox" + "accounting", etc. published between January 2020 and March 2023. Then, we conducted an open reading of the collected articles to remove duplicates and irrelevant articles and finalized the corpus (Table 1). Next, we conducted open coding at the level of a text unit, defined as a sentence or sequence of sentences conveying a coherent point.<sup>17</sup> This step of open coding to create codes in close relation to the text was aimed at discovering ideas about abstract concepts and theories. Following the completion of open coding, we used focused coding to search for relationships and connections between first-order codes, which enabled us to develop second-order categories that

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reflected distinct elements related to ethical challenges in the metaverse of relevance to accountants and auditors.<sup>18</sup> Table 2 shows the coding structure, and Table 3 highlights some representative quotes for key ethical issues relevant to the accounting profession that emerged from the data. The next section details the major themes that emerged from our content analysis.

**Table 1. Data sources**

Source Type	Number
Newspaper articles	28
Industry and magazine reports	7
Scholarly articles	14
Opinion posts/ Blogs	5

**Table 2. Data analysis and codes**

First-order codes	Second-order themes	Theoretical constructs
<ul style="list-style-type: none"> <li>➤ a collection of shared virtual worlds which are interoperable</li> <li>➤ something more than “Second Life”</li> <li>➤ a virtual parallel world that would be combined with the physical one</li> <li>➤ a virtual communication environment in which value objects only have an intangible form</li> <li>➤ an open, virtual environment where users can log in to play games, earn currency, purchase NFTs, including land or collectibles, and vote on economy governance, or create NFT</li> <li>➤ a virtual world that is derivative of our physical world</li> </ul>	Defining the “metaverse”	
<ul style="list-style-type: none"> <li>➤ a space where transactions take place among economic avatars</li> <li>➤ Spend time for work, shopping, education, social and/or entertainment</li> <li>➤ a space where public institutions can offer administrative services, such as the Seoul government hosting the Seoul Lantern Festival on the metaverse in 2023.</li> </ul>	Defining the “economy of the metaverse”	Ambiguity concerning how the metaverse should be defined
<ul style="list-style-type: none"> <li>➤ virtual land, virtual estates, virtual shopping malls, etc.</li> <li>➤ in-game items, digital art, music, collectibles, etc.</li> <li>➤ virtual characters and avatars</li> <li>➤ virtual event tickets, passes and other types of access to virtual events and experiences</li> <li>➤ digital assets and decentralized finance/ Web3</li> <li>➤ non-fungible tokens</li> <li>➤ cryptocurrencies</li> <li>➤ smart contracts, atomic swaps</li> </ul>	Defining assets involving economics of the metaverse	
<ul style="list-style-type: none"> <li>➤ digital avatars vs. virtual twins</li> <li>➤ relationship between real and virtual selves</li> <li>➤ need for persistent virtual identity vs. fluid virtual identity</li> <li>➤ anonymity vs. non-anonymity for authenticity and trust in virtual transactions in the metaverse</li> </ul>	Defining “identity” in the metaverse	

<ul style="list-style-type: none"> <li>➤ data-invasive business models</li> <li>➤ data security, protection/ storage of personal data</li> <li>➤ data theft, scams, false chargebacks</li> <li>➤ DDoS (distributed denial-of-service) attacks</li> </ul>	Privacy and safety issues	
<ul style="list-style-type: none"> <li>➤ need for verifiable credentials</li> <li>➤ volatility of cryptocurrency</li> <li>➤ high risk</li> <li>➤ zero-knowledge proofs</li> <li>➤ trustless anonymous transactions of cryptocurrencies</li> <li>➤ formal service level agreements to define the expected level of service in the metaverse such as guaranteed availability of metaverse to user</li> </ul>	Trust issues	Ethical and legal concerns regarding the economics of the metaverse
<ul style="list-style-type: none"> <li>➤ legal documentation to complete transactions</li> <li>➤ absence of exact and comprehensive international regulations governing the internet, blockchain and metaverse</li> <li>➤ Mechanisms for dispute resolution</li> <li>➤ Jurisdiction and governance boundaries</li> </ul>	Creation of new frameworks and mechanisms	
<ul style="list-style-type: none"> <li>➤ fraudulent activities/ unfair practices</li> <li>➤ “pump and dump” NFTs</li> <li>➤ protecting user rights, including virtual property rights</li> <li>➤ user control over their data, privacy, and consent</li> </ul>	User/ consumer protection issues	
<ul style="list-style-type: none"> <li>➤ new digital divides</li> <li>➤ addiction</li> <li>➤ exploitation of minors and vulnerable users</li> </ul>	Prevention of exploitation and discrimination	
<ul style="list-style-type: none"> <li>➤ The Metaverse Standards Forum</li> <li>➤ The Open Metaverse Alliance</li> <li>➤ metaverse alliance</li> </ul>	Articulating new relationships in the metaverse	Strategic alliances and partnerships
<ul style="list-style-type: none"> <li>➤ Zuck Zuck Land Giveaway Campaign</li> <li>➤ Metaverse Entertainment World Summit and Awards</li> <li>➤ MTV’s Best Metaverse Performance award</li> <li>➤ Interior Design’s Metaverse Architecture and Design (MAD) Awards</li> </ul>	Contests, quests, and tournaments	

**Table 3. Prominent challenges in the economy of the metaverse**

Ethical Issues	Representative quotes
Ambiguity concerning basic definitions and terminologies	“When asked if they agreed or disagreed with the statement ‘I understand what the metaverse is’, only 16% of people said that they agreed. This percentage was fairly consistent across all age groups, with 18-29 year-olds performing slightly worse than their older cohorts.”- Dept Agency Report (June 14, 2022)
Lack of legal and regulatory oversight	“My biggest worry about all this is that we’re rushing headlong into it without all the safety measures that we need. There is no regulating force in this new world, other than for-profit companies with their own territories. There is no force coming in to say, ‘Here are the ways we should behave, and here’s what we do with the small percentage of people who misbehave.’”- Avi Bar-Zeev. Technologist in interview with <i>Spatial Reality</i>

Exploitation of children and vulnerable population	“Walmart has quietly removed its undisclosed <i>Universe of Play</i> advergaming from the Roblox platform in the wake of action taken by a coalition of advocacy groups [...] the metaverse game, featuring ads, virtual products and characters from Paw Patrol, Jurassic World, L.O.L. Surprise! and more, not only blurred the distinction between advertising content and organic content, but also lacked required disclosures and manipulated kids into viewing and interacting with stealth ads.” <sup>19</sup>
Increasing crime in the metaverse	“Financial cybercrimes in the metaverse have increased in the last years significantly, with either the massive stealing of cryptocurrencies from exchanges or the sale of fake or dubious NFT and other financial products that have lost significant value within a short period of time. Cybercrimes in the metaverse have taken place at significant scales, and given the infancy of regulations as well as the virtual nature of these activities, only few crimes have been prosecuted.” <sup>20</sup>

### Key findings on ethical issues in the metaverse relevant to the accounting profession

#### 1. *Ambiguity concerning key terms and vocabularies of the metaverse*

From Table 2, we see that there are significant differences in how the metaverse is defined and understood. The lack of consensus on a uniform definition makes it difficult to establish the boundaries of the economy of the metaverse, which can present problems in determining what should be recognized as digital assets (land, estates, avatar wearables, unique names associated with a virtual brand, etc.) and how they should be measured on financial statements. Inconsistencies in interpreting key terminologies associated with the metaverse like virtual property or non-fungible tokens across distinct contexts have the potential to generate confusion and misunderstandings in applying accounting guidelines. Ultimately, such ambiguities inherent in important terms related to the metaverse can lead to large variations in accounting treatment across organizations and industries. In the absence of established benchmarks, historical market data and effective pricing mechanisms in the virtual economy, it can be even more challenging to assess the fair values of virtual properties, virtual currencies, and non-fungible tokens, or to ensure the reasonableness of any existing valuations.

In addition, the metaverse presents new forms of ambiguity concerning personal identity, who can own assets or intellectual property, and how related legal sanctions should be applied. For example, it is relatively easy to create avatars for bots in the metaverse, and to have these avatars enter into smart contracts and own virtual assets. However, the underlying physical legal identities of these avatars are digital “bots” produced by artificial



intelligence (AI) systems and not real people. This raises questions on who should be held accountable for any unethical actions by these bot-enabled avatars, such as spreading misinformation, violating contracts, or engaging in disruptive behaviors.

### ***2. Uncertainties concerning legal status of virtual assets and entities, and corresponding trust issues***

As a virtual realm, the metaverse does not align well with traditional legal frameworks, rendering it difficult to ascertain the legal status of virtual property, digital contracts, and intellectual property rights. In addition, the metaverse transcends physical boundaries making it hard to determine which jurisdiction's laws and regulations apply. This can complicate the accounting and auditing processes and create challenges for accountants in ensuring compliance with applicable laws and regulations. In detailing the legal status of blockchain-based tokens and assets, Serada et al. pointed out:

The materiality of fiat money adds another problematic level of trust and safety to such transactions. [Withdrawing cryptocurrency into cash involves using] specialized cryptocurrency exchange services that are imposed to the same legislation as banks, and the transactions are most vulnerable to robbery and likely to be considered a “gray” or “black market” operation in most countries.<sup>21</sup>

These issues are historically typical to virtual worlds. For instance, in 2006, Anshe Chung, the avatar or online personality of Ailin Graef, claimed to have become the first virtual millionaire by buying, selling, and building virtual real estate in *Second Life*. Her virtual holdings at that time could be converted into USD worth more than \$1 million since *Second Life* allowed currency exchanges between Linden dollars and real dollars. In this regard, journalist Roger Parloff raised an intriguing ethical and legal question: “Is Linden Lab is courting legal [and ethical] liability if its servers should suddenly go down one day, destroyed, say, in some real-world earthquake, leaving *Second Life* denizens devoid of “property” or at least expectations in which they've invested so much real time and money?”<sup>22</sup> The so-called “permanent ownership” in the metaverse is endangered by its potential permanent loss (such as lost cryptowallets due to hackers or swindlers that cannot be recovered, or other factors).

Even today, content creators may find their music, artwork, or designs in virtual environments like Decentraland being misappropriated or used without authorization. Decentraland claims to have its transactions backed by Ethereum-supported “smart contracts” and facilitates “atomic swaps” that require each party to fulfill their obligation (either delivering the

cryptocurrency MANA or a LAND token) before a specified amount of time elapses. However, Decentraland's terms of use make a stark disclaimer:

MANA [land parcels, wearables and any and all ERC-721] are intangible digital assets that exist only by virtue of the ownership record maintained in the Ethereum network. All smart contracts are conducted and occur on the decentralized ledger within the Ethereum platform. The foundation has no control over and make no guarantees or promises with respect to the ownership record or smart contracts.<sup>23</sup>

Similarly, there are legal uncertainties about classifying assets sold in virtual environments like *CryptoKitties* (created in 2017 by Vancouver-based startup Axiom Zen), where players can buy, sell, and breed virtual cats as unique collectables represented by non-fungible tokens (NFTs). Regulators in British Columbia noted that the tokens underlying these collectibles could not be classified as "securities", and therefore the province's securities legislation would not apply to the sale of the company's cryptographic cats.<sup>24</sup> On top of this, *CryptoKitties* offered very little protection against the so-called "kitty burglars" creating anxiety among its users. In a similar vein, the 2022 *Nike v. StockX* case filed by Nike against online marketplace StockX for trademark infringement, counterfeiting and false advertising by selling an NFT collection tied to Nike shoes without authorization further highlights how intellectual property rights can be infringed for utilitarian purposes in the metaverse.

Moreover, transaction costs involved in deployment and enforcement of digital contracts in virtual worlds, such as the *Core contract*, the *GeneScience contract*, the *Offers contract*, the *SalesAuction contract*, and the *SiringAuction contract* in *CryptoKitties* are fraught with uncertainty. Poorly designed smart contracts can make it more expensive for users to transact in virtual worlds, as seen in *CryptoKitties* deployed on Ethereum, where the costs of buying, breeding, and renting kitties, as well as the fees paid to Ethereum miners rose significantly due to the rapid rise of Ether price in 2017-18.<sup>25</sup> Lastly, due to the ambiguity in the legal status of NFTs in different countries, there are legal and accounting considerations in terms of how inheritance laws will work. Once an individual dies, what will happen to their virtual avatar and virtual properties? When the next of kin inherits these virtual properties, how exactly would tax laws be applied?

### ***3. Exploitation of children and other vulnerable population***

It is well-acknowledged that the accounting profession has an important role to play in contributing to public interest and common good.<sup>26</sup> Apart from complying with national and international accounting standards,

accountants also need to consider how the agency of their work impacts communities and societies.<sup>27</sup> The concept of “accounting for the vulnerable” suggests that accounting can increase the visibility of different issues by holding the powerful to account, counting the vulnerable, being a powerful tool in the hands of vulnerable people, and better understanding the world we live in.<sup>28</sup> As such, accounting and auditing will be pivotal to navigating the ethical complexities and protecting the vulnerable in the metaverse.

In the absence of strict rules and systems of enforcement in the metaverse, there could be exploitation, discrimination, and undesirable behaviors in various forms. For example, a child could purchase alcohol in a virtual store, or participate in adult activities. Although there are age restrictions to access virtual worlds like *Fortnite* (age 13 and above) and *Decentraland* (age 18 and above), these are relatively easy to circumvent. As noted by Sanjay Mallick on the Acuity Knowledge Partners blog, long exposure to the metaverse could lead to psychological and mental problems when users become desensitized and replicate their metaverse behaviors in the real world.<sup>29</sup> For example, in the metaverse, users could have personas that are not aligned with their real-world values, such as displaying greater aggressiveness, deceitfulness or recklessness. Over time, they can become desensitized to the consequences of their actions, generate a diminished sense of empathy, and their virtual behaviors might seep into real life. To control unscrupulous behavior in the metaverse, Meta had to introduce a “personal boundary” feature after a user experienced a virtual attack on her avatar on *Horizon Venues*. The human side of the accounting and auditing profession, including keeping an eye out for exploitation of minors and other vulnerable population will become even more important.

The psychological and behavioral implications of virtual experiences in the metaverse are important. Apart from desensitization to violence, sensory overloads caused by close-to-reality virtual experiences could have an adverse impact on those with heart conditions or epilepsy. However, having rules like compelling users to disclose their age and detail any prior disorders before they can access the metaverse can also have unintended negative consequences. As such, accounting for the users who fall into these categories and securing their well-being through appropriate regulations are critical to the operation of the metaverse. The *Responsible Metaverse Alliance*, a movement to support the responsible development of the metaverse, has been working with politicians, government officials, regulators, and policy makers internationally to identify and discuss ways to address the potential harms of the metaverse, including safety and wellbeing issues like bullying, exploitation, discrimination, virtual reality sickness and metaverse fatigue.

### ***4. New partnerships and alliances are integral to the accounting and ethics of the metaverse***

Institutionalizing rules and codes of conduct in the metaverse requires the cooperative efforts of different organizations across sectors. Metaverse assets are borderless and require international collaboration to prevent regulatory arbitrage. To combat unethical activities in the metaverse and build trust in the virtual economy, different regulatory agencies need to collaborate as part of a global ecosystem to incentivize prompt data sharing, establish uniform principles, and generate agreements on interpreting ambiguous vocabularies. For instance, the Japanese government published a white paper in 2023 calling for the public and private sectors to work together to determine NFT rights, and to consider ways for content holders to legally license NFTs. Again, South Korea has created a “metaverse alliance” of domestic companies to promote the development of a national virtual and augmented reality platform and to determine the ethical implications embedded in virtual environments. Similarly, for companies like Meta, expanding the metaverse audience requires technological integration of Meta's platforms and headsets with Microsoft and Adobe apps, along with strategic partnerships like *The Metaverse Standards Forum* and *The Open Metaverse Alliance* promoting open, interoperable metaverse standards. These alliances may contribute to the development of updated disclosure requirements for risks associated with NFTs and NFT-related commitments in a company's financial statements. Accountants need to actively participate in these discussions and keep abreast of updates to ensure that companies operating in the metaverse remain compliant with existing cryptocurrency and NFT-related requirements both domestically and abroad.

### **Final thoughts**

For the accounting profession, the popularity of the metaverse will involve a variety of legal and ethical issues, including keeping abreast of changing regulations in different regions, re-evaluating what constitutes virtual assets and how these are valued and depreciated, and transparently disclosing how valuations are determined. Accountants need to pay close attention to how artificial scarcity is manufactured in the metaverse economy, and to what extent the valuation of virtual assets will hold over the long-term. As trading in NFTs is risky, accountants will play a crucial role in providing a true and fair view of the financial position of a firm operating in the metaverse, and helping detect any misstatements, errors, or fraud.

Further, accountants must closely distinguish between virtual identities tied to a real person versus those tied to artificial intelligence systems or nonhuman agents. Today, it is possible for AI systems to hold conversations,

provide ideas, and masquerade as humans. However, AI systems are not “legal persons,” and accountants need to differentiate whether they’re dealing with a metaverse corporation run and controlled by AI, or by a human being.

There is certainly a need for clear definitions, standards, and regulatory guidance specific to the metaverse. This may require legislative efforts, international cooperation, involvement of legal experts, policymakers, and other stakeholders to establish a foundation of trust in the metaverse. In addition, accounting firms need to emphasize the importance of an AI-literate culture, where employees are trained to meticulously audit proceeds from virtual storefronts, virtual mines, metaverse gathering events, etc., and attend to any red flags that might indicate fraudulent activities.

### Author

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### Endnotes

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