Metaversalize

www.meta.reapress.com

Metaverse. Vol. 1, No. 1 (2024) 42–54.

Paper Type: Original Article

The Metaverse and Its Emerging Role in the Future of Accounting

Mahdi Filsaraei*

Department of Accounting, Hakim Toos Institute of Higher Education, Mashhad, Iran; filsaraei@yahoo.com.

Citation:

Received: 27 April 2023 *Revised: 05 September 2023* *Accepted: 12 November 2023*	Filsaraei, M. (2024). The metaverse and its emerging role in the future of accounting. *Metaversalize, 1*(1), 42-54.

Abstract

The metaverse is a proposed future internet iteration that supports long-term, decentralized online 3D virtual environments. The links between the financial, virtual, and physical worlds are becoming increasingly interconnected. It consists of always-on virtual environments where many users can interact with each other and digital objects while embodying virtual representations or avatars of themselves. This research aims to investigate the impact of the metaverse on the future of accounting. The target population for this study is all certified public accountants (independent auditors), which comprises an unlimited group estimated at 1,200 individuals, according to a report by the Iranian Association of Official Accountants. Using Morgan's table, the statistical sample is estimated to be 291 individuals selected through availability sampling. AMOS software is employed for data analysis. The results indicate that the metaverse's nature, position, examples, and attributes significantly influence the future of accounting. Therefore, the central hypothesis that the metaverse affects the future of accounting is confirmed.

Keywords: Accounting, Metaverse, Morgan's table.

1 | Introduction

It is important to clarify the differences between Virtual Reality (VR) and Augmented Reality (AR) to prevent confusion from arising from similar terminology. The metaverse concept primarily relates to VR, while AR involves the overlay of virtual objects and data onto the user's real-world environment. This technology enhances the user's experience by superimposing digital information on their surroundings, providing additional insights or guidance [1]. By allowing real-world data to interact with digital content, AR offers individuals a more profound understanding, enabling them to navigate real-life situations more effectively [2].

Unlike AR, the VR is a technology that immerses users in a completely virtual environment, creating the illusion that they are interacting with natural objects within that world. This immersive experience is facilitated

Corresponding Author: filsaraei@yahoo.com

10.22105/metaverse.vi.31

by computer-generated three-dimensional environments, where user interactions are reflected in the simulated world [3]. VR enhances fictional realities, allowing users to access these virtual realms through specialized devices while the system maintains control over their experience [1]. According to the Financial Reporting Council (FRC), VR creates a fully simulated experience. Some definitions describe a virtual environment as an indirect representation of three-dimensional objects through simulation, closely resembling actual physical characteristics such as size, weight, color, width, and height [4]. Though VR technology is not new it has been in development for several decades—the journey of VR, which began in the early 20th century, is expansive. From 1970 to 1990, the VR industry experienced significant growth across various sectors, including medicine and the automotive industry. The beginning of the 21st century marked a new era for the VR industry [5].

Existing applications, such as computer-aided design for product development and architecture, intelligent city planning, AI-assisted industrial systems, and robot-supported hazardous operations, are abundant. After creating a digital replica of the physical world, the next phase focuses on producing native content. Content creators, potentially represented by avatars, engage in digital creation within this virtual environment. These digital creations can be linked to their physical counterparts. Meanwhile, connected ecosystems—including culture, economy, laws and regulations (such as data ownership), and social norms—support these digital initiatives [6]. These ecosystems mirror the norms and regulations found in real society and facilitate the production of both physical goods and intangible content.

Notably, the metaverse enables interoperability between platforms that represent different virtual worlds. This allows users to create and widely distribute content across various platforms. For instance, a user can create content for one game, like Minecraft, and transfer it to another platform or game, such as Roblox, while maintaining a continuous identity and experience. Additionally, the platform can communicate with and interact with our physical world through multiple channels, drawing on user information via head-mounted displays or mobile headsets (like Microsoft HoloLens). In this context, the metaverse's content, avatars, and computer agents can interact with smart devices [6].

The metaverse can generally be seen as a network that integrates various elements of social networks, online video games, AR, VR, and digital currencies [7]. It represents a hypothetical future evolution of the Internet that supports decentralized and persistent online 3D virtual environments. This always-on virtual network enables numerous individuals to interact with each other and digital objects while participating in virtual performances or utilizing their avatars. Devices that manage people's lives provide access to nearly everything they need at the touch of a button [8].

A significant obstacle to adopting the metaverse is the technological limitations of current devices and sensors necessary for interacting with real-time virtual environments [8]. Data privacy and user addiction are additional concerns stemming from current challenges social media and the video game industry face. The hyper-connected world, much like today's Internet, necessitates the creation of new technologies, service providers, products, content producers, rules and regulations, standards, and protocols, all of which require a community of stakeholders. As a result, many current giants in the technology sector are expected to play a significant role in its development.

Blockchain technology offers a transparent and reliable management system. In the foreseeable future, extensive technology corporations will likely lead the way, but the decentralized nature of blockchain also allows smaller operators to contribute to the growth of the metaverse. Non-Fungible Tokens (NFTs), blockchain games, and cryptocurrency payments are becoming more accessible and are no longer limited to crypto enthusiasts. The metaverse has the potential to create new job opportunities; for example, graphic designers can create metaverse items using simple tools provided by projects like Send, allowing them to earn money. In the metaverse, designers will implement various elements such as clothing, city-wide advertisements, and store decorations.

This development presents new income-generating opportunities for many businesses, from large enterprises to retail. Although the Internet has significantly broadened business customers, the metaverse offers a new social user experience. In a conventional online store, you browse alone. In a metaverse store, you are surrounded by others, creating a sense of community. This virtual space facilitates a group shopping experience closely resembling the real world, making it more appealing than existing online store models.

The virtual world of the metaverse holds the potential to become a trillion-dollar industry, serving as a hub for entertainment, advertising, and, for some, a workplace. The metaverse is not simply an extension of the Internet; it is its successor, designed using blockchain technology and decentralized applications. It is often described as a virtual yet stable world where users can engage with one another through their digital personas. These virtual environments can serve various purposes, including social interactions, gaming, and professional activities [9].

Initially, one might wonder why accounting and auditing are necessary in the metaverse, a virtual world. The historical reason for the existence of accounting is rooted in economic exchange and trade among people, which also occurs in the metaverse. Digital users can buy and sell digital assets with one another. Given this economic exchange, accounting is crucial in safeguarding scarce and limited resources within the metaverse.

In the future, accounting will have two dimensions: one in the metaverse and the other in the real world. The metaverse's economy is primarily based on NFTs. Each digital asset is assigned a unique digital code, and physical assets are also associated with digital codes—these codes are referred to as tokens. These tokens represent digital assets that hold value and can be exchanged and owned.

Companies must address various accounting challenges to thrive in creating virtual branches. This includes measuring NFTs, determining their appropriate classification, and ensuring proper disclosure. Unfortunately, the debate surrounding cryptocurrencies, the classification of digital assets, and the development of related international standards remains unresolved. Some categorize these assets as cash, others as financial instruments or intangible assets, and others as equity items. Additionally, businesses face challenges in recognizing revenue from the sale of digital assets or determining the costs related to their development, whether as current or capital expenses.

The NFT generally transfer digital rights in the metaverse rather than tangible assets in the physical world. However, researchers believe that VR holds promise for enhancing financial reporting. For instance, companies could present their annual reports and results using VR capabilities, like 3D videos, instead of traditional text. They could also conduct annual shareholder meetings using VR technology, offering a more immersive experience than current methods that rely on social media and official websites.

The accounting and auditing profession faces several challenges, including the content of financial reports, the risk of these reports being overlooked, and delays in their issuance due to reliance on paper or PDF formats. These delays can hinder the timeliness of information needed for decision-making, which, in turn, impacts the auditors' reporting timelines.

Integrating VR and blockchain technology in the metaverse is expected to fundamentally change the audit process. However, advancements in technology are not likely to eliminate the need for independent audits. Auditors will need a thorough understanding of the metaverse and its financial environment, the ability to identify relevant risks, and the ability to develop comprehensive audit plans.

Auditors will encounter heightened risks related to cybersecurity, privacy, and data identity when auditing in the metaverse. This necessitates that auditors assess these risks and understand the technologies comprising the metaverse during both the planning and execution of the audit process. After the planning phase, auditors must find sufficient and persuasive evidence to form a sound opinion.

Metaverse technologies' unique features and capabilities will positively influence the supporting evidence auditors require. The metaverse can serve as an audit tool, enabling auditors to visit companies in virtual spaces rather than physically traveling to various locations, saving on travel expenses [10].

To date, no empirical research has explored the impact of digital transformation—specifically the metaverse—on the future of auditing. This presents an innovative opportunity for study. Therefore, one may ask: What does the future of auditing look like concerning the metaverse? Will it evolve into a platform for multiple online activities, including work, play, study, and shopping?

2 | Research Hypotheses

Main hypothesis

From the perspective of certified public accountants (independent auditors), the metaverse significantly impacts the future of accounting.

Subsidiary hypotheses

I. The nature of the metaverse affects the future of accounting.

II. The positioning of the metaverse influences the future of accounting.

III. Examples and characteristics of the metaverse impact the future of accounting.

3 | Research Background

Parandin et al. [11] conducted a study to examine the views of Iranian Certified Public Accountants Society members regarding the implementation of IT audits. The study aimed to identify the obstacles and challenges faced in implementing this type of audit. The results of the data analysis indicated that members of the Iranian Certified Public Accountants Association view IT auditing as beneficial. However, they also identified several obstacles and challenges, including 1) insufficient knowledge and experience in IT auditing among members of the professional auditing community. A limited number of large auditing firms in Iran. 2) the absence of IT auditing standards within the country and the inability of auditing firms to attract and hire professionals from specialties other than accounting and auditing. Lack of connection between auditing firms and international auditing firms, along with insufficient utilization of their experiences. The absence of professional associations related to IT auditing. This study highlights the need for enhanced education, standards, and collaboration within the field of IT auditing in Iran.

Nasiri [12] conducted four types of the metaverse and describe their potential and limitations in educational applications. The study employed a descriptive-evaluative methodology and gathered data from library sources. The findings suggest that the metaverse possesses the potential to serve as a new educational environment, providing a space for new social connections and a greater degree of freedom to create, share, and explore experiences with high immersion through virtualization.

Marfoo et al. [13] conducted research investigating the impact of organizational and environmental factors on the acceptance of computer-assisted auditing tools and techniques. They collected data through a questionnaire distributed to 650 auditors working in audit organizations and firms that are members of the Society of Certified Public Accountants. To test the research hypotheses, they utilized Structural Equation Modeling (SEM). The results indicated that factors such as the complexity of clients' information systems and competitive pressure, as well as organizational aspects like the institution's size and senior management's commitment, positively and significantly influence the adoption of computer-aided auditing tools and techniques. However, the level of support from professional accounting institutions and the IT competence of employees were not found to be statistically significant in this context.

Sarlak and Bady [14] discussed how the metaverse will integrate with digital assets to provide access to services and products across different regions. They highlighted the role of blockchain-based digital identity solutions in developing truly sustainable digital avatars.

Farokhi and Shahamat [7] pointed out that the metaverse has gained immense popularity, creating opportunities beyond the restrictions of conventional screen-based internet usage. This article aims to define the metaverse, explore its applications, and discuss its role and advantages in learning and education.

Arasteh [15] addressed the rapid growth of cyberspace and its user applications, labeling it as an explosive development and one of the most significant events of the 21st century. His article employs a descriptive-analytical approach and proposes a model and strategies to mitigate risks associated with these developments.

George et al. [8] noted a considerable shift from the real economy to the digital economy, a transition that has accelerated since the global pandemic. Their findings indicate that people's work and lives are increasingly reliant on the internet, with individuals now spending more time online than offline. As COVID-19 spread, the demand for VR grew, leading to significant expansion in the metaverse industry.

Lee et al. [6] noted that cyberspace has been continuously evolving since the rise of the Internet in the 1990s. While the concept of the metaverse may appear futuristic, it is being accelerated by emerging technologies such as AR, 5G, and artificial intelligence. The digital "Big Bang" of cyberspace is not as far off as one might think.

4 | Research Methodology

This research is classified as applied research, employing quantitative and qualitative data collection methods. A mixed exploratory research design was utilized. Two methods—library research and field research — were employed for gathering the necessary information. Additionally, a questionnaire was used to collect data for analysis.

The statistical population for this study consists of all certified public accountants (independent auditors) working in the city of Mashhad, with a total population estimated at 1,200, according to the report from the Iranian Society of Certified Public Accountants. Based on the Morgan table relevant to this population, the sample size was determined to be 291 individuals (approximately 300) from the research population to be evaluated.

Two questionnaires were used for data collection in this study. The first questionnaire focuses on the metaverse and consists of four demographic questions and 34 specialized questions covering three components of the metaverse: its nature, relevance, and examples and characteristics. The second questionnaire examines the future of accounting and includes 25 specialized questions related to accounting, auditing, and education.

Table 1. Variables and questions related to variables in the metaverse questionnaire.

Questions	Variable
2, 3, 4, 13, 14, 16, 22, 28, 33	The nature of the metaverse
1, 4, 8, 10, 11, 12, 15, 19, 20, 21, 23, 24, 26, 27, 29, 30, 31, 32,	Metaverse position
5, 6, 7, 9, 18, 25, 34	Examples and attributes of metaverse

Source: research questionnaire

Table 2. Variables and questions related to variables in the future audit questionnaire.

Questions	Variable
1, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20	Accounting
21, 22, 23, 24, 25	Education

Source: research questionnaire

In this study, the validity of the questionnaires was assessed by professional professors, industry experts, and specialists. To evaluate reliability, the study utilized SPSS software. The questionnaires were distributed among the target population, and a minimum reliability coefficient of 0.7 is generally recommended. In this research, the Cronbach's alpha coefficient was calculated using SPSS version 22. The results showed a Cronbach's alpha of 0.72 for the metaverse questionnaire and 0.76 for the Future of Auditing questionnaire, both of which

exceed the recommended threshold of 0.7. This indicates that the questionnaires possess high reliability. Overall, the test results confirm that the questionnaires are sufficiently reliable.

Table 3. Reliability test of questionnaires.

Cronbach's Alpha	Number of Questions	Questionnaire
0.72	34	Metaverse
0.76	25	The future of accounting

Source: researcher's findings

In the present study, we utilized both descriptive and inferential statistics for data analysis, employing SPSS and LISREL software. Frequency distributions, percentages, and graphical representations were used to assess the demographic variables of the study, while SEM was applied for inferential analysis.

4.1|Descriptive Data Analysis

At the beginning of the research questionnaire, we included questions to gather demographic characteristics of the participants. The results of this analysis are presented as follows.

Table 4. Frequency distribution and frequency percentage of samples by age, education status and gender (source: findings enrollment).

Total Sum	50 and Up	41-50	31-40	20-30	Statistical Index (Age)
300	8	163	125	4	Abundance
10	2.66	54.34	41.67	1.33	Abundance percentage
Total sum	Ph.D	Master's degree	Bachelor's degree	Post graduate	Statistical index (education)
300	6	163	131	0	Abundance
100	2	54.34	43.66	0	Abundance percentage
Total sum		The man		Woman	Statistical index (gender)
300		220		80	Abundance
100		73.34		26.66	Abundance percentage

Source: researcher's findings

The findings presented in *Table 4* indicate that out of a total sample of 300 individuals, 4 are aged between 20 and 30, 125 are between 31 and 40, 163 are between 41 and 50, and 8 are aged 50 years and older. Additionally, among the 300 participants, 131 hold bachelor's degrees, 163 possess master's degrees, and 6 have doctoral degrees. The sample consists of 80 women and 220 men.

The first variable consists of three items measured using a 5-point Likert scale. The calculation method for the component scores aligns with the metaverse components discussed in the previous section. *Table 6* provides descriptive statistics for the metaverse variable and its constituent items.

Table 5. Descriptive indicators of metaverse and the future of accounting and auditing.

Standard Deviation	Maximum Score	Minimum Score	Average	Number	Variable
1.0	5.0	1.0	3.3	300	The nature of the metaverse
0.9	5.0	1.0	3.4	300	Metaverse position
0.9	5.0	1.0	3.0	300	Examples and attributes of metaverse
0.9	5.0	1.0	3.4	300	Metaverse
Standard deviation	Highest score	Lowest score	Average	Number	Component
0.6	5.0	0.3	3.5	300	The future of accounting
0.8	4.0	0/0	2.7	300	Education

Source: researcher's findings

An analysis of the data in *Table 5* reveals that the metaverse is positioned at a higher level, with a mean score of 3.4. In contrast, the mean score for metaverse instances and attributes is notably lower at 0.3. However, it is essential to note that the mean score for all components exceeds the average level of 3. The minimum score recorded for the components is 1, while the maximum score is 5. The metaverse's overall mean and standard

deviation are 3.4 and 0.9, respectively. Among all components, the education component has the lowest mean value, which stands at 2.7. Nevertheless, all components have mean scores above the average of 3. The standard deviation for all components is 0.8 or less, indicating a relatively small range of responses and suggesting a consensus among respondents regarding the questions related to these components. The mean score for the future of accounting is 3.5, with a standard deviation of 0.6.

Table 6. Correlation of variables.

Education	The Future of Accounting	Examples and Attributes of Metaverse	Metaverse Position	The Nature of the Metaverse	Variables
				-	The nature of the metaverse
			-	0.12	Metaverse position
		-	-0.16	0.23	Examples and attributes of metaverse
	-	0.42*	0.69**	0.45**	The future of accounting
-	0.21*	0.45**	0.28*	0.38*	Education

Table 6 presents the correlation coefficients of the measured variables in this study, which examines the relationships between these variables. The significance of the correlation coefficients is indicated by either one or two stars. Two stars signify significance at a level of less than one percent, while one star indicates significance at a level of less than five percent.

4.2 | Inferential Statistics

As previously mentioned, the research hypotheses in this study are tested using SEM. To evaluate these hypotheses, the conceptual model is first assessed through SEM using Amos software. The overall fit of the measurement model is determined by Confirmatory Factor Analysis (CFA). The structure of the measurement model for this study is illustrated below. In this model, the manifest and latent variables are identified by their respective names, while variables 1e to 6e represent error terms.

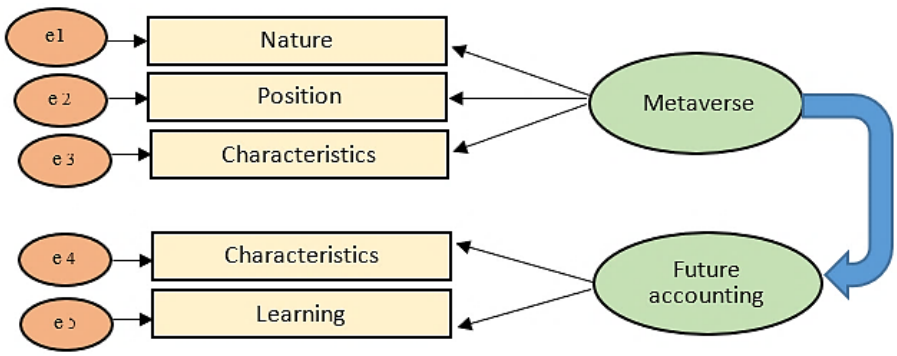

Fig. 1. Model measurement research with use from analysis an agent confirmation (source: researcher's findings).

4.3 | Measurement Model

The measurement model after the reforms is as follows.

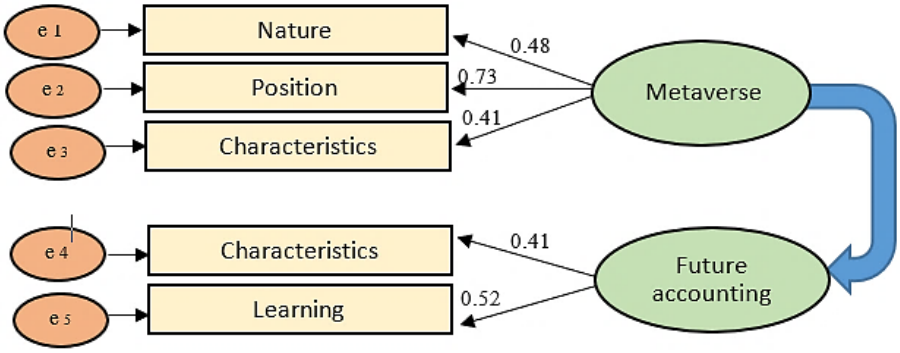

Fig. 2. Model measurement (source: researcher's findings).

Table 7. The results of the research measurement model.

P-value	Standard Deviation	Factor Load	Variables	
0.000	0.24	0.48	The nature of the metaverse	Metaverse
0.000	0.21	0.73	Metaverse position	
0.000	0.22	0.27	Examples and attributes of metaverse	
0.000	0.18	0.52	The future of accounting	The future of auditing
0.000	0.24	0.63	Education	

Source: researcher's findings

Table 8 displays the fit indices of the model above. If the values of these fit indices fall within the desired range, it indicates that the model is suitable for the collected data.

Table 8. Fit indices for the research measurement model.

χ^2 / df	Standardized Root Mean Square Residual (SRMSR)	Root Mean Square Error of Approximation (RMSEA)	Tucker-Lewis Coefficient (TLI)	Comparative Fit Index (CFI)
1.18	0.050	0.052	0.85	0.81

Desired values: $\chi^2 / df \leq 3$, TLI, CFI $\geq 0/90$, RMSEA $\leq 0/09$, SRMSR $\leq 0/10$

$260\chi^2 = 0.58$, df $= 178$

Source: researcher's findings

As can be seen from *Table 8*, all indicat as shown in *Table 8*, all indicators fall within the desired range, confirming the appropriateness of the research measurement model in fitting the collected data.

4.4 | Structural Model of the Research

In this section, we will examine the structural model of the research, which is illustrated in *Fig. 3*.

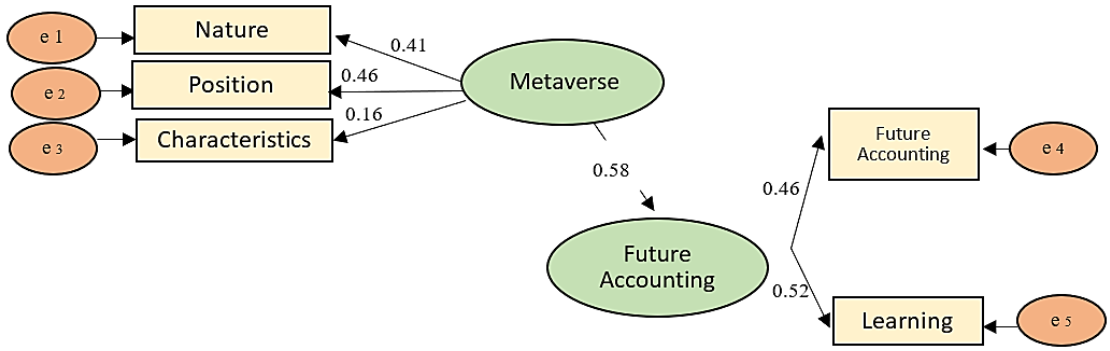

Fig. 3. Model structural for research hypotheses (source: researcher's findings).

According to the results of this model, all coefficients of the indicator variables have a P-value <0.05, indicating that these coefficients are statistically significant. *Table 9* displays the fit indices of the research's structural model.

Table 9. Fit indices for research hypothesis model.

χ^2 / df	Standardized Root Mean Square Residual (SRMSR)	Root Mean Square Error of Approximation (RMSEA)	Tucker-Lewis Coefficient (TLI)	Comparative Fit Index (CFI)
1.38	0.066	0.072	0.92	0.95
Desired values: $\chi^2 / df \leq 3$, TLI, CFI $\geq 0/90$, RMSEA $\leq 0/09$, SRMSR $\leq 0/10$				
$281\chi^2 = 0.32$, df =697				

Source: researcher's findings

The table of fit indices indicates that all values fall within the desired range. Consequently, the suitability of the research structural model for fitting the collected data is affirmed.

5 | Research Hypothesis Test

Hypothesis 1. The results about the *Hypothesis 1* of the research model are shown in *Table 10*.

Table 10. The results of examining hypothesis one.

The Result	t-Value	P-Value	Path Coefficient	Statistics
Meaningful	5.41	0.000	0.53	The nature of the metaverse⟶ The future of accounting

Source: researcher's findings

Table 10 shows the path coefficient between the nature of the metaverse and the future of accounting. The P-value is 0.000, which is less than 0.05, indicating that this coefficient is significant at the 95% confidence level. Additionally, the value of the coefficient is 0.52, a positive figure that signifies the impact of the nature of the metaverse on the future of accounting.

Hypothesis 2. For the *Hypothesis 2*, the results of the research model are presented in *Table 11*.

Table 11. The results of the second hypothesis.

The Result	t-value	P-value	Path Coefficient	Statistics
Meaningful	6.38	0.000	0.67	The metaverse place⟶ The future of accounting

Source: researcher's findings

As shown in *Table 11*, the path coefficient between the metaverse position and the future of accounting has a P-value of 0.000, which is less than 0.05. This indicates that the coefficient is statistically significant at the

95% confidence level. Furthermore, the value of this coefficient is 0.67, which is positive. This suggests that there is a positive relationship between the metaverse position and the future of accounting.

Hypothesis 3. The results of the research model related to the *Hypothesis 3* can be found in *Table 12*.

Table 12. The results of the third hypothesis.

The Result	t-Value	P-Value	Path Coefficient	Statistics
Meaningful	6.12	0.000	0.57	Examples and characteristics of Metaverses →The future of auditing

Source: researcher's findings

As shown in *Table 12*, the path coefficient that links the metaverse instances and attributes to the future of accounting has a P-value of 0.000, which is less than 0.05. This indicates that the coefficient is statistically significant at the 95% confidence level. Furthermore, the value of this coefficient is 0.57, a positive value that indicates a positive relationship between the metaverse instances and attributes and the future of accounting.

6 | Discussion and Conclusion

This research aims to explore the impact of the metaverse on the future of accounting. Accounting must safeguard scarce and limited resources because the metaverse involves economic exchanges. The metaverse operates within its economy, fundamentally reliant on NFTs. These tokens represent digital assets that possess value and can be exchanged and owned. However, the ongoing debate regarding the classification of digital currencies and assets and the establishment of international standards related to them remains unresolved. Some view these assets as cash, while others classify them as financial instruments, intangible assets, or equity items. Another challenge stems from determining the income realized from their sale or the costs associated with their development, particularly regarding their classification as current or capital expenses.

The accounting and auditing profession faces several challenges, including the content of financial reports, the risk of those reports being overlooked, delays in their issuance, and the need for timely information for decision-making. Significant changes in the audit process are anticipated with the integration of VR technology and blockchain in the metaverse. However, technological advancements are not expected to eliminate the necessity for independent audits. Auditors must develop a solid understanding of the metaverse's nature and its financial environment, identify relevant risks, and create a comprehensive audit plan. Conducting an audit in the metaverse introduces elevated risks of cybersecurity, privacy, and data identity. Therefore, auditors must assess these risks and understand the technologies involved in the metaverse during both the planning and execution phases of the audit process. Additionally, the metaverse can serve as an audit tool, allowing auditors to virtually visit companies instead of physically traveling to their locations, thereby reducing travel costs.

In examining the study's first hypothesis, the path coefficient between the nature of the metaverse and the future of accounting yields a P-value of 0.001, which is less than 0.05. This indicates that the coefficient is statistically significant at the 95% confidence level. The value of this coefficient is 0.53, a positive value that demonstrates the impact of the metaverse's nature on the future of accounting. Some argue that the metaverse's virtual economy is based on the same principles of scarcity seen in the real world, suggesting a continued need for the accounting profession. Others contend that the structural characteristics of virtual worlds make them unsuitable for scarcity-based economies and that replicating the real-world economy may not be the best approach in the metaverse. The findings of this hypothesis align with the research conducted by Sarlak and Bady [14] in 2021. They confirm that the metaverse is expected to inherit the values of permissionless access, censorship resistance, security, and decentralization that characterize the blockchain industry. Additionally, digital assets provide cross-regional access to services and products, supported by blockchain-based digital identity solutions that help cultivate sustainable digital avatars.

This text aligns with the findings of Jamalianpour and Zandi [10], and Farrokhi and Shahamat [7] regarding the impact of the metaverse. Many metaverse projects and cryptocurrency-based social media platforms are in development and possess significant technical and initial advantages over corporate-backed alternative.

In assessing the second research hypothesis, the path coefficient between the position of the metaverse and the future of accounting shows a P-value of 0.001, which is less than 0.05, indicating that this coefficient is statistically significant at the 95% confidence level. The value of this coefficient is 0.67, suggesting a positive correlation between the metaverse's position and the future of accounting. The integration and harmony of metaverse technologies imply that it is feasible to design accounting information systems tailored to the virtual environment. These systems can enhance the reliability of financial data, reduce the likelihood of errors, and minimize opportunities for fraud.

Furthermore, if a company operates primarily within the metaverse, auditors must understand the technologies that define this environment and relate them to their auditing concepts and requirements. This understanding will enable them to evaluate the foundational systems to audit development. Once the planning phase of the audit process is completed, the execution phase begins, relying on impartial technical assessments of the fairness of financial reports.

This hypothesis is supported by the research of Jamalianpour and Zandi [10], as well as Nasiri [12]. The metaverse has the potential to serve as a novel educational environment, fostering new social connections and offering a greater degree of freedom for creation, sharing, and immersive experiences through virtualization. However, it may also lead to weaker social connections and privacy concerns.

The metaverse is anticipated to transform our daily lives and the economy, extending beyond merely gaming and entertainment. As a new space for social communication, it holds limitless potential.

In examining the third research hypothesis regarding the path coefficient between instances and attributes of the metaverse and the future of accounting, we found a P-value of 0.000, less than 0.05. This indicates that the coefficient is significant at the 95% confidence level. Furthermore, the value of this coefficient is 0.57, which is positive. This result suggests a beneficial effect of metaverse instances and attributes on the future of accounting.

Initially, the adoption of VR technology by companies rooted in physical reality may reduce some reinforcing features. However, overall, accounting information is expected to be better understood, interpreted, and visualized by users and stakeholders within the metaverse. The previous analysis primarily focused on VR as a key technology in the metaverse.

Through VR and other techniques, accountants can simulate scenarios in the metaverse, exploring multiple potential outcomes and transitioning between them. VR has been praised for its ability to present financial data in 3D charts instead of traditional 2D formats, offering accountants a unique perspective and enabling real-time financial simulations. Additionally, integrating VR and blockchain technologies in the metaverse is anticipated to transform the auditing process fundamentally.

This hypothesis aligns with Murray [16] and Jamalianpour and Zandi [10] findings, and it also supports the research conducted by Georgi et al. [8]. Their work highlights the significant global shift from a real economy to a digital economy, a transition that has accelerated since the onset of the global pandemic.

As people increasingly rely on the Internet for work, social interaction, commerce, and entertainment, COVID-19 has reshaped work culture, hastening the growth of e-commerce and altering business operations. The shift to remote work has prompted companies to prioritize virtual environments, demonstrating that technology is crucial for sustaining numerous job roles.

Computer technology, graphics, and hardware advancements have transformed the virtual world into a reality. How people communicate has evolved, with most interactions now occurring online. A transition from the information-based Internet to an Internet of value is anticipated, with the transfer of digital assets increasingly

facilitated through blockchain technologies and avatars. This new paradigm of digital value is shaping a novel economic model.

As an initial effort, this research provides a comprehensive framework discussing the latest developments in the metaverse, focusing on innovative technologies and metaverse ecosystems. It illuminates the digital potential of what can be termed the "Big Bang," explores the new technologies within the metaverse, and outlines their advantages and applications while also examining how these advancements are transforming human society and ushering in a new reality.

Accessing the virtual world via the Internet is limited to mobile phones, computers, and laptops. However, the metaverse aims to overcome these limitations and introduce a new realm beyond physical locations. Since Facebook rebranded itself as Meta, discussions about the nature of the metaverse have intensified. Though the concept has existed for nearly three decades, it has recently gained significant attention.

Research by Lee et al. [6] in 2021 highlights how the idea of the metaverse has evolved since the rise of the Internet in the 1990s. These virtual environments, while non-permanent and disconnected, have contributed to varying degrees of digital transformation. The term "metaverse" was created to further enable digital transformation in all aspects of our physical lives. At the core of the metaverse is a vision of an all-encompassing Internet—a vast, unified, sustainable, and shared space. While the metaverse may appear futuristic, advancements in technologies such as AR, 5G, and artificial intelligence suggest that the digital revolution in our cyberspace is on the horizon.

The recommendations from this study are as follows:

- *The ministry of science, research, and technology should develop metaverse training courses for auditors to prevent data misuse.*
- *Audit organizations, professionals in the field, and institutions involved in creating accounting standards should prepare for these changes and proactively address them.*
- *Future research should specifically explore the impact of the metaverse on accounting standards.*
- *Future research should also investigate how the metaverse affects the digital teaching of accounting.*

References

[1] Folger, J. (2022). Metaverse definition. Investopedia.

[2] Rathore, D. (2022). *The metaverse: phase of virtual realities*. https://www.dunebook.com/the-metaverse-phase-of-virtual-realities/

[3] Ramadan, M. A. M. (2018). Interior design and technology of visible virtual reality. *Journal of arts & applied sciences (JAAS)*, *5*(3), 1-14. (**In Arabic**). https://doi.org/10.21608/maut.2018.106525

[4] Ray, J. (2020). VR-not a reality but neither a hallucination nor dreaming imaginings. *CSI communications: knowledge digest for it community*, *44*(4), 10–13.

[5] Greiner, P., Bogatsch, T., Jahn, N., Martins, L., Linß, G., & Notni, G. (2019). Remote-audit and vr support in precision and mechanical engineering. *Photonics and education in measurement science 2019* (Vol. 11144, p. 48). SPIE. https://doi.org/10.1117/12.2533016

[6] Lee, L. H., Braud, T., Zhou, P., Wang, L., Xu, D., Lin, Z., … & Hui, P. (2021). All one needs to know about metaverse: a complete survey on technological singularity, virtual ecosystem, and research agenda. *Foundations and trends®in human-computer interaction*, *18*(2-3), 100–337. https://doi.org/10.1561/1100000095

[7] Farrokhi, M. J., & Shahamat, N. (2022). The role and application of metaverse in the learning process. *Fourth international conference on psychology, educational sciences and social studies*, Hamedan, Iran, Civilica. (**In Persian**). https://civilica.com/doc/1450391/

[8] Fernando, M., Hovan George, A. S., George, A. S., Baskar, T., & Pandey, D. (2021). Metaverse: The next stage of human culture and the internet. *International journal of advanced research trends in engineering and technology (IJARTET)*, *8*(12), 1–10. https://www.researchgate.net/publication/357354932

[9] Tahourian, H. (2022). Exploring the impact of the metaverse on the future of humanity. *The 6th international conference on applied research in science and engineering*, Aachen, Germany. Civilica. (**In Persian**). https://civilica.com/doc/1447286/

[10] Jamalianpour, M. & Zandi, Z. (2023). Accounting and auditing in the metaverse from a virtual reality perspective: a future research. *Accountant journal*, (348), 48-59. (**In Persian**). https://hesabdar.iica.ir/articles/hesabdar-1402-03-348-48-59

[11] Parandin, K., Dustjabarian, J., & Allikhani, M. (2023). Obstacles to the implementation of information technology audit in Iran. *Professional auditing research*, *3*(12), 88-105. (**In Persian**). https://doi.org/10.22034/jpar.2023.1996238.1147

[12] Nasiri, F. (2022). Educational applications of the metaverse: Possibilities and limitations. *The first research conference*, Hormozgan-Fin, Hormozgan, Iran. Civilica. (**In Persian**). https://civilica.com/doc/1452860/

[13] Marfou, M., Bayazidi, P., & Salehpor, A.. (2022). Organizational and environmental influences on the adoption of computer-assisted audit tools and techniques (CAATTs). *Professional auditing research*, *2*(6), 130-148. (**In Persian**). https://doi.org/10.22034/jpar.2022.553858.1089

[14] Sarlak, H., & Bady, N. (202AD). Exploring the metaverse on blockchain. *The 6th international conference on interdisciplinary research in electrical, computer, mechanical and mechatronics engineering in iran and the islamic world*, Tehran, Iran. Civilica. (**In Persian**). https://civilica.com/doc/1452623/

[15] Arasteh, M. A. (2021). New identity challenges in the metaverse. *The 6th national conference on new horizons in electrical, computer and mechanical engineering*, Tehran, Iran. Civilica. (**In Persian**). https://civilica.com/doc/1467308/

[16] Murray, D. (2021). *An inquiry into designing metaverses*. https://doi.org/10.13140/RG.2.2.23227.54560