

The Metaverse and the Rule of Risk: AI Insights, Human Judgment, and the Future of Digital Governance

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Abstract

The appearance of the metaverse is changing the business and education ecosystem, and has brought new legal, ethical, and regulatory issues in the areas of risk governance and insurance law. The given work is a comparative analysis of the views of the experts human opinion and AI-generated in order to investigate the socio-technical, economic, and legal aspects of the metaverse. The study will draw upon a thematic analysis of semi-structured interviews with experts in the field of subject matter and compare their answers with the Chatbot responses provided by ChatGPT to extract the primary themes in the area of digital identity, virtual teamwork, data control, and cybersecurity. Although the two sources acknowledge the transformative potential of the metaverse in virtual business and immersive education, analysts note that the regulatory coherence, privacy regulations, and responsibility cutoffs must be established to eliminate the potential of systemic threats. The insights produced by AI, in their turn, underline the scalability and accessibility of metaverse technologies and tend to downplay the complexity of compliance and liability. The paper highlights the importance of legal uncertainty related to digital assets, decentralized governance, and AI-based interactions as the new space of insurance innovation and risk modelling. This study brings together technological vision and the professional judgment to fortify the existing knowledge on governance, liability and ethical accountability in the emergent digital economies, and provides policy implications to policymakers, insurers and legal professionals in the digital age.

Keywords: Metaverse, Artificial Intelligence, Digital Governance, Risk Regulation, Insurance Law, Data Privacy, Cybersecurity.

1. Background and Introduction

1.1. Metaverse: An Overview

Metaverse is a combination of virtual and augmented realities, artificial intelligence, blockchain, and spatial computing. It has become a fast-growing technological ecosystem, changing education and business to an immersive experience and better collaboration. The applications of the metaverse in business organizations are in marketing and customer interaction as well as collaboration between the workforce through virtual showrooms, AI-driven training, and immersive e-commerce (Dwivedi et al., 2023). The metaverse can support individual and personalized education, skill acquisition, as well as joint virtual spaces in the education sector (Mystakidis, 2022). Nevertheless, such issues as regulatory uncertainty, data privacy, and accessibility remain (Koohang et al., 2023). In this paper, the comparative analysis between the

subject matter experts (SMEs) in a live webinar and AI-generated feedback on ChatGPT is used to study the technological, economic, and educational implications of the metaverse.

1.2. Evolution of the Metaverse

The metaverse has evolved into a highly developed digital ecosystem that incorporates AI, blockchain, and extended reality technologies (XR) (Dubey and Spanaki, 2022). The current technologies of computing power, high-speed internet, and AI-based solutions have made it possible to have continuous and ubiquitous digital spaces in which a user can work, learn, and socialize. Also, cryptocurrencies and NFTs have brought up decentralized economies by blockchain technologies and disrupted digital ownership and commerce (Mozumder et al., 2023). Extended reality (XR), which also incorporates virtual reality (VR) and augmented reality (AR), has played even greater role in increasing the level of interactivity, making virtual experience more realistic (Felix et al., 2022). These inventions make the metaverse a major driver of digital change in various sectors.

1.3. The Metaverse in Business

Companies are currently adopting the metaverse technologies at a very high rate to improve their online presence, streamline business operations and connect with consumers in new ways. The virtual retail setting, analytics based on AI, and transactions in blockchain are changing the conventional business models to enable more interactive and personalized customer experiences (Schroeder et al., 2023). Also, remote work and digital collaboration technology in the metaverse is creating more dynamic and flexible working conditions, decreasing the geographical limits and the cost of operation (Gursoy et al., 2022). Although these are positive, companies are forced to overcome numerous obstacles, such as the risks of cybercrime, regulatory problems, and the necessity to invest heavily in technological solutions. The de facto of the metaverse is also concerning the aspect of governance and intellectual property rights, the ethical considerations of digital identity management (Janssen, 2022). Thus, these aspects should be thoroughly analyzed to see the real potential of the metaverse and the issues that businesses are going to face in order to enjoy its positive outcomes.

1.4. The Metaverse in Education

The introduction of metaverse technologies into learning is transforming the pedagogical practice, providing a chance to experience and learn through immersion. Student engagement and cognitive development are being accelerated by virtual simulations, learning modules in form of games, and AI-based personalized education platforms (Kavanagh et al., 2021). The metaverse also facilitates students to engage in interactive and practical experiences, which were once constrained by physical and financial means, and, therefore, makes education more accessible and inclusive (Capatina et al., 2024). The mass application of the metaverse as the educational process, however, is associated with several difficulties such as digital discrimination, technological infrastructure, and the necessity to ensure strong data privacy policies (Selwyn and Aagaard, 2021). Moreover, it is also a subject of continued discussion and investigation as to whether AI-driven virtual classrooms have any long-term feasibility and what psychological effects an immersive learning environment has. This research offers a critical

analysis of these new issues and provides understanding of how learning institutions can efficiently use metaverse technologies to provide sustainable and inclusive learning.

2. Theoretical Foundations of the Metaverse

The development and effects of the metaverse can be studied in the light of a variety of theoretical views, such as media ecology theory, social presence theory, and constructivist learning theory. These frameworks offer a systematic insight into the transformation of business, education, and human relations in the virtual world by the metaverse.

2.1. Media Ecology Theory

According to the Media ecology theory by McLuhan (1964) and later developed by postman (1970), technological change influences experiences and social organization of humans. The digital media phenomenon is the metaverse which is a new ecosystem in which the digital interactions challenge the business processes and learning experience. This theory has it that the metaverse affects the trends of communication, the models of the economy, and the interaction in society, incorporating artificial intelligence (AI), virtual reality (VR), and blockchain technology (Dwivedi et al., 2023). In business, the metaverse is a simulation environment with digital reality that transforms the conventional business model. Online trade, teleworking, and artificial intelligence are in line with the ideas of McLuhan that the form of human experience is determined by tech mediums (Schroeder et al., 2023). On the same note, the metaverse is changing the way of teaching and learning through the establishment of an interactive and participatory learning environment, which is validating the argument presented by Postman that technological advancements are redefining the dissemination of knowledge (Selwyn, and Aagaard, 2021).

2.2. Social Presence Theory

The theory of social presence, which was suggested by Short, Williams, and Christie (1976), emphasizes personal contact within mediation space. Avatars and artificial intelligence make the metaverse more real, offering a significant level of social and business interaction (Dwivedi et al., 2022). Virtual work places and market places in business establish interaction and virtual reality simulations are similar to face to face interaction. The metaverse platform of remote-working companies is more engaged than the traditional video-conferencing (Lopez-Cabarcos and Pineiro-Chousa, 2024). Equally, customer strategies such as virtual shopping, which are based on metaverse, are more trusted and interactive (Dubey and Spanaki, 2022). Social presence enhances student interaction and cooperation, which in turn facilitates immersive learning in the education sector (Kavanagh et al., 2021).

2.3. Constructivist Learning Theory

Constructivist learning theory is a theory created by Piaget (1952) and further developed by Vygotsky (1978), which assumes the construction of knowledge by the participants of active interaction and social interaction. The metaverse is based on constructivist values by providing experiential learning spaces through simulations and gamification in addition to interactive evaluations (Mystakidis, 2022). Virtual laboratories and AI tutors go in line with the concept of a zone of proximal development (Zawacki-Richter et al., 2023). As an example, the medical

students who train surgical procedures with the help of virtual simulations acquire practical experience in a non-threatening environment (Capatina et al., 2024). Correspondingly, organizations use constructivist principles in employee education via VR-based training through onboarding, management development, and skills training, in which the intelligence-driven mentors give real-time feedback (Tan et al., 2023).

2.4. Integration of Theoretical Perspectives

The intersection of media ecology theory and social presence theory with constructivist learning theory can be used to provide a holistic approach to understanding the effect of the metaverse on business and education. Although the media ecology theory puts the metaverse in the context of the further development of digital communication, the social presence theory makes it understandable why it works so well to promote interaction, and the constructivist learning theory helps to understand why it helps to engage and acquire knowledge. This theoretical framework highlights that the applications, limitations, and ethical concerns of the metaverse require an additional analysis. With the growth of the use of metaverse technologies in businesses and in educational institutions, having knowledge of the theoretical aspects can give a lot of information on how to use its potential to the full extent without exposing businesses and schools to associated risks. Further studies are needed in the future to discuss the development of these theoretical approaches based on the technological changes and user experiences of the metaverse.

3. Problem Statement, Research Objectives, and Research Questions

The metaverse is developing quickly, but the opportunities of comparing expert opinions with the insights generated by AI are few. The previous literature pays attention to technological and economic factors (Pereira et al., 2022), and there is less attention to the examination of its direction by SMEs and AI. Researchers focus on innovation and digitalization (Schroeder et al., 2023), and AI models provide the predictions of the data. The paper fills this gap by contrasting the SME insights and AI perspectives on the adoption of metaverse in business and education. Although the effects of the metaverse on collaboration, learning, and economics are discussed, issues unique to the sector are under-investigated. Studies address immersive learning (Capatina et al., 2024) and virtual business strategies (Brynjolfsson and McAfee, 2014) but do not provide the cross-sector analysis. There is a need to explore issues such as accessibility (He et al., 2021), the effects of virtual collaboration on workplace culture, and others (Hassouneh and Brengman, 2021). Business and education have collaboration, transformation, and immersion metaverse adoption tendencies. The genuine reason why a single research framework is justified is corporate-academic collaboration, like metaverse-based training (Tan et al., 2023). The research presents information that can be applied in any industry such as health and entertainment.

Considering the fast development of the metaverse in the business and educational fields, this paper intends to: 1) Compare thematic insights of SMEs and AI-generated answers on the evolution and use of the metaverse, 2) Analyze the opportunities and challenges of metaverse adoption in business and education, 3) Determine the implications of virtual collaboration, digital identity, and economic transformation within the metaverse and 4) Find the key technological, ethical, and regulatory aspects of the sustainable development of the metaverse.

In order to fulfill these objectives, the proposed research will answer the following research questions:

1. What is the difference between SMEs and AI-generated thoughts on the future and development of the metaverse?
2. How are the main opportunities and challenges of the metaverse implementation in business and education?
3. What is the effect of the metaverse on virtual teamwork and digital identity control, and industry economies?
4. What ethical, technological and regulation systems are required to have the metaverse integrated sustainably?

4. Methods

The methodology used to obtain the goals of this study was a structured one (Fig. 1). This was done by using semi-structured interviews that were informed by a series of interview questions (Section 4.1), which were used to extract the in-depth viewpoints of the experienced professionals in the domain. SMEs were selected using purposive sampling (Section 4.2) where it was ensured that there were representation of academia, technology consultancy, corporate sectors, and research organizations. Also, responses obtained using AI were based on a standardized set of prompts, and the responses were chosen in terms of relevance, depth, and contextual accuracy (Section 4.3). The AI responses were obtained through the use of iterative questioning to generate data after collecting data via Zoom-based interviews with SMEs. To find the essential themes, contrasts, and common aspects, thematic analysis (Section 4.4) was carried out, which allowed examining human expertise and AI-generated insights in a comparative manner. This approach was aimed at making the results more reliable and credible and also making the metaverse and its role in business and education widely explored.

4.1. Interview questions

To understand the views of business and education professionals on the effects, challenges, and opportunities of the metaverse, nine interview questions were created (Appendix A). The questions were structured to provide open-ended and insight-based responses and were flexible in encouraging industry-specific discussions since the business experts were able to talk about corporate training and digital commerce, and the education experts were able to speak about immersive learning and instructional design. The questions were pre-tested and checked by experts to make sure they were clear and relevant and were neutral. Intent, consistency and accuracy were evaluated by two language experts, and wording was modified to create clarity. The logical flow, alignment of research, neutrality and ethical considerations were tested through a pre-test involving the subject experts. Feedback was used to make minor refinements to make them more effective and appropriate.

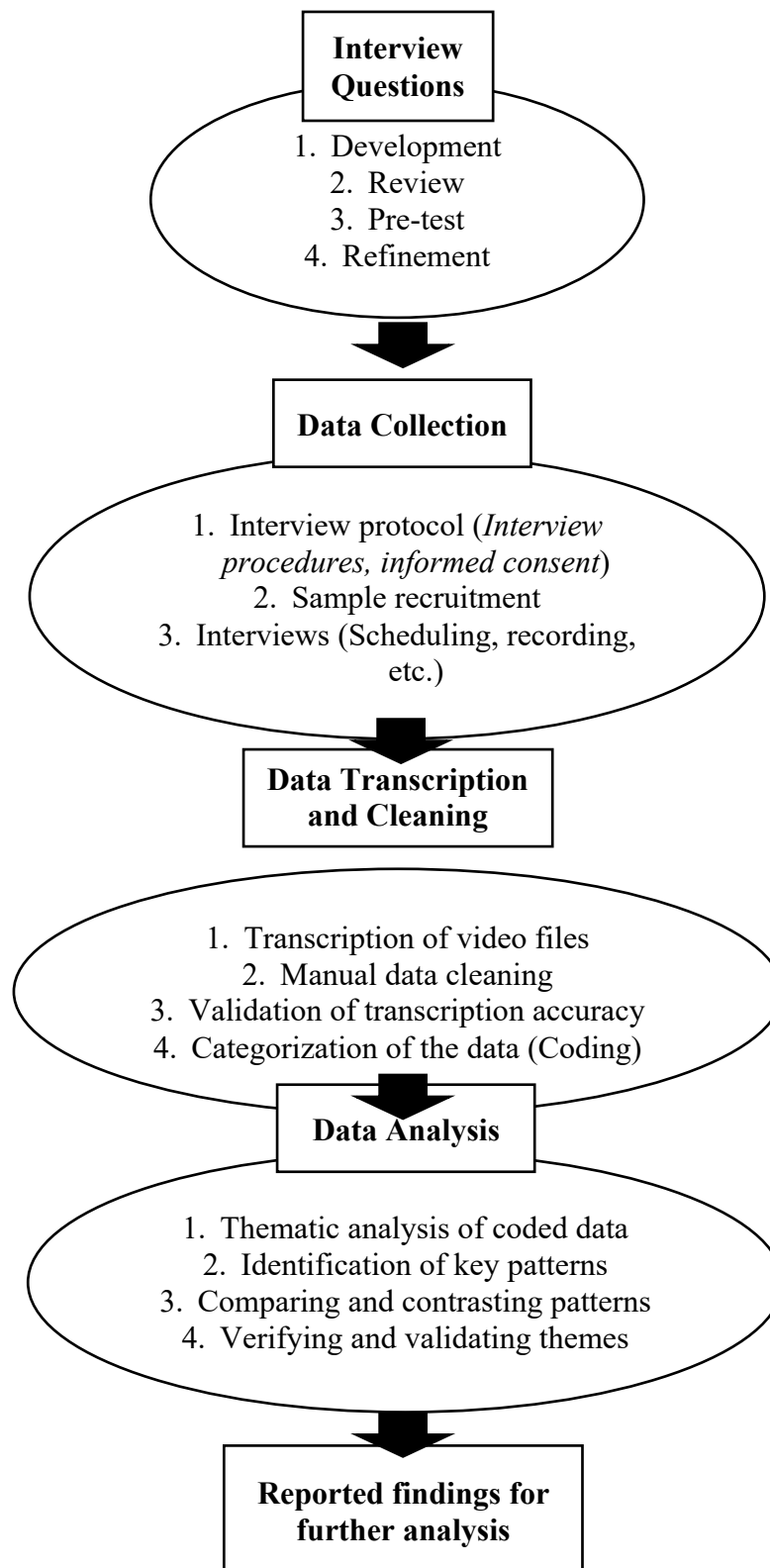


Fig. 1. Systematics processes for interview questions, data collection, and data analysis.

4.2. Participant Selection, Expertise Alignment, Inclusion, Exclusion Criteria, and Data Saturation

The sampling method used is purposive sampling because it was necessary to represent business and education sectors. SMEs had to possess at least five years of experience in the metaverse-related areas of AI, learning and teaching technology, or the digital transformation. Preference was also given to those who had published research or their contribution in industry. The exclusion criteria were that the experience was less than five years, direct engagement in metaverse technologies was absent, or they were not experts in business and education. The sample size was informed by data saturation and the interviews were continued until no new themes appeared. Saturation was evaluated in the process of coding and thematic analysis in order to get comprehensive insights. The reactions of SMEs were considered in their main sphere, where the education specialists were concerned about learning conditions, and the business experts were oriented on corporate training and metaverse-oriented models. A balanced and sector-based understanding was achieved by selecting the sample of university faculty, researchers, corporate, technology consultants and industry leaders. Professional networks, LinkedIn and industry conferences were used to identify the participants. The SMEs that satisfied these requirements were invited to take part, taking into consideration the balance in the representation of both academic and industrial viewpoints. This method provided the study with a stronger level of credibility since a combination of scholarly, industry, and research professionals was involved to provide a balanced discussion of the role of metaverse in education and business.

Table 1. Demographics of SMEs

SME ID	Industry Affiliation	Experience (In Yrs.)	Primary Area of Expertise
SME 1	Academic (University)	10+	Information Systems & AI
SME 2	Technology Consultant	8	Digital Transformation & VR
SME 3	Corporate (Metaverse Startups)	7	Immersive Learning & Blockchain
SME 4	Business Executive (Retail)	12	Virtual Commerce & Customer Experience
SME 5	AI and EdTech Researcher	9	AI in Education & Training

Note. SMEs = Subject matter experts.

4.3. Criteria for AI-Generated Responses

Because responses generated by AI (through ChatGPT) formed a comparative aspect of this study, two selection criteria were applied to guarantee consistency and reliability: 1) Consistency of Prompts - The responses produced by AI were generated using a uniform set of interview questions to gain comparability with the responses of SMEs, 2) Iteration and Refinement - Two distinct AI responses have been generated on each question, and the most detailed, contextually relevant response was subjected to selection. In case of any important differences in the responses, both were processed to reflect variability in AI reasoning, 3) Exclusion of Redundant Content - Responses that had an overly generic or repetitive content were filtered out to ensure that the analysis considered only meaningful differences with SME views, and 4) Timestamping to ensure Version Control - Since AI models generally improve over time, all responses were

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generated within the same period (Q4 2024) (OpenAI, 2024) to avoid differences in analysis based on changes in AI training data.

4.4. Data collection

There was an interview protocol, which consisted of guidelines, an informed consent form, and major questions that were in line with the objectives of the research. The convenience sampling method was used to choose participants on a list of SMEs that has been curated. The participants who took part in the study and consented to the interview are five people with experience in the Metaverse. Doodle was used to book the interviews and Zoom video calls were used to conduct discussions. Interviews lasted 45 minutes to one hour, which was sufficient to cover all the topics of discussion. Moreover, in order to receive AI-generated answers, the questions were randomized and next to each other twice sent to ChatGPT. Responses that had the most detailed and elaborated information were given precedence in the analysis but the two sets of responses were taken into consideration in case they showed any significant difference. The responses which were duplicated or overlapping were dropped so that the analysis remained clear.

4.5. Data analysis

Some of the recorded interviews were transcribed via Rev and were accurate and efficient (Rev, n.d.). The transcriptions were checked by hand to ensure errors were not made and were validated by recordings and cleaned to be consistent. The process was comprehensive and ready to conduct a structured analysis of the data. The responses were then divided into thematic segments in terms of discussions. The use of qualitative thematic analysis (Braun & Clarke, 2006) helped to reveal, classify, and explain repetitive patterns. The information was read repeatedly to identify the significant ideas, recurrent phrases, and differences. This methodologic technique offered more information about the practical knowledge of SMEs and the data-driven interpretations of ChatGPT (Sterne, 2019). Additional comparison was made of themes that were unique to SMEs as well as those that were unique to ChatGPT and areas of overlap as well. The reactions of SME included individual experiences, industry knowledge, and subtle views on the business and education. The ChatGPT-generated insights were analytical and generalized using wide training information. The areas of agreement on the potential of the metaverse were depicted by the identification of common themes. This comparative method allowed conducting a balanced analysis of human and AI positions, which guaranteed full insight into the role of the metaverse in the business and education spheres. Thematic results informed general deliberations on the digital change, virtual teamwork, and immersive learning platform.

5. Results

5.2. Thematic Analyses of Responses from SMEs and ChatGpt

5.2.1. Themes Unique to SMEs

The webinar responses have 14 distinct themes identified through thematic analysis (Table 2). The initial three themes were dedicated to the technological basis of the metaverse, such as AR and VR and AI, and social and professional interaction in the form of digital avatars. The following two themes were focused on the digital identities and increased virtual cooperation, which placed the metaverse as an active alternative to conventional business practices. Next came the themes of skill building, cognitive development and how social and collaborative learning can be

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used in online settings. A different major theme dealt with introducing the concept of augmented reality and mixed reality into learning to make it more flexible. The rest of the themes were on challenges and opportunities, including the technological maturity, cognitive impacts, digital addiction, and AI-driven education. Lastly, the long-term feasibility theme discussed the realistic expectations of the implementation of the metaverse, focusing on the time and effort needed to ensure the adoption of the technology becomes widespread.

Table 2. Themes unique to ChatGpt, webinar, and shared by both

	Unique to ChatGPT	Unique to SMEs	Shared by Both ChatGPT and SMEs
Theme	1) Origins & Evolution 2) Technological Progress 3) Challenges & Future Scope 4) Remote Work & Collaboration 5) Marketing & Customer Engagement 6) E-commerce & Immersive Shopping 7) Training & Data Visualization 8) Immersive & Interactive Learning 9) Improved Access & Inclusion 10) Personalized & Collaborative Learning 11) Blended Learning & Hybrid Models 12) Enhanced Classroom Experience 13) Personalized & Adaptive Learning 14) Gamification & Interdisciplinary Learning 15) Technical & Financial Barriers 16) Privacy & Security Risks 17) Regulatory Uncertainty 18) User Adoption & Compatibility 19) Sustainability 20) Cybersecurity 21) Collaboration for Safe Implementation.	1) Integration of Technologies 2) Virtual Identity & Interaction 3) Economic Aspects 4) Digital Identity for Businesses 5) Enhanced Virtual Collaboration 6) Experiential Business Interactions 7) Experiential & Immersive Learning 8) Skill Development & Cognitive Growth 9) Social & Collaborative Learning 10) Augmented & Mixed Reality Integration 11) Technological Maturity 12) Human-Technology Balance 13) Education Transformation 14) Long-Term Feasibility.	1) Technological integration 2) Virtual identity and interaction 3) Economic and business applications 4) Education and learning transformation 5) Challenges and ethical concerns 6) Sustainability and governance.

Note. SMEs = Subject matter experts.

5.2.2. *Themes Unique to ChatGPT*

ChatGPT responses were thematically analyzed revealing 21 distinct themes (Table 2). The initial two sections followed the development of the metaverse since the iconic Snow Crash by Neal Stephenson (1992) to the power of VR, gaming, and corporate funding. The initial difficulties were also identified at the early stages, including the technological, social, and financial impediments. The themes that followed explored the application of the metaverse in the business context, such as virtual businesses, improved collaboration, new forms of e-commerce, and virtual training. The other important focus was education transformation which included immersive learning, global access, AI-enabled personalization, and the fusion of virtual and traditional education. Engagement strategies were also identified as gamification and interdisciplinary learning. The other themes touched on the issue of the adoption of the metaverse, such as financial, technical, privacy, security, and regulatory issues. Sustainability and cybersecurity were highlighted as the keys to long-term sustainability, and there was a necessity to collaborate with stakeholders in order to develop responsibility.

5.2.3. *Themes Shared by Both ChatGPT and SMEs*

Next time looking through the overlapping themes, it became possible to single out six themes that were common between ChatGPT and Webinar answers to the interview questions (Table 2). The former and latter themes emphasized the importance of technologies such as AR, VR, AI, blockchain, and spatial computing to the expansion of the metaverse, and the establishment of digital personas in social and work life. The theme three and four dwelt on the economic and business aspects, such as cryptocurrency use, virtual commerce, and digital branding, as well as the revolution of education through improved virtual classes and skill training. The fifth and sixth themes covered issues of the privacy threats, and ethical issues, and the regulatory issues and risk, as well as the potential role of the metaverse in creating sustainability and the need to create governance systems.

5.3. *Interview Question-wide Thematic Analyses*

The thematic analysis reflected significant differences between the ChatGPT-generated answers and information during the webinars (Table 3). ChatGPT focused more on technology advancement, integration and digital identity, especially in business and learning. It emphasized immersive learning, improved virtual collaboration, and adaptive learning models, which is a wide-ranging, progressive view of technological applications. On the other hand, experiential elements, including AI-powered simulations, training based on skills, and the balance of online and offline communication were given a greater emphasis in the webinar discussions. The webinar content also explored practical economic and operational transitions, and focused on the actual implementation issues, and not the theoretical developments.

The other major difference that came out was in the discourse of barriers and risks linked to technological adoption. ChatGPT recognized regulatory uncertainty, privacy issues, and accessibility limitations as the main challenges, keeping in mind the general view of the possible limitations. In the meantime, the responses of the webinar dealt more practically with issues, such as changes in the workforce, integration in manufacturing, and devolution of governance in the changing digital environment. Also, sustainability and cybersecurity were common themes in both analyses, but the webinar had a higher focus on whether the digital transformations can be

long-term. Such distinctions indicate that ChatGPT gives a more organized but generalized view whereas webinars discussions involve more nuanced and real-world factors.

Table 3

Interview Question-wide Thematic Analyses

Themes Emerged		
Question	ChatGpt	SMEs
1.	1. Origins & Evolution 2. Technological Progress 3. Challenges & Future Scope	1. Integration of Technologies 2. Virtual Identity & Interaction 3. Economic Aspects
2.	1. Remote Work & Collaboration 2. Marketing & Customer Engagement 3. E-commerce & Immersive Shopping 4. Training & Data Visualization	1. Digital Identity for Businesses 2. Enhanced Virtual Collaboration 3. Experiential Business Interactions
3.	1. Immersive & Interactive Learning 2. Improved Access & Inclusion 3. Personalized & Collaborative Learning 4. Blended Learning & Hybrid Models	1. Experiential & Immersive Learning 2. Skill Development & Cognitive Growth 3. Social & Collaborative Learning 4. Augmented & Mixed Reality Integration
4.	1. Enhanced Classroom Experience 2. Personalized & Adaptive Learning 3. Remote & Global Accessibility 4. Gamification & Interdisciplinary Learning	1. Virtual Classroom Replacement 2. Experiential Learning via AI & Simulations 3. Skill-Based Training & Repetitive Practice 4. Beyond Video Conferencing
5.	1. Technical & Financial Barriers 2. Privacy & Security Risks 3. Regulatory Uncertainty 4. User Adoption & Compatibility	1. Workforce & Organizational Shifts 2. Manufacturing Integration 3. Digital-Physical Balance 4. Economic & Operational Transition
6.	1. Technical Barriers 2. Equity & Accessibility 3. Privacy & Security 4. Regulatory & Adoption Challenges	1. Technological Maturity 2. Human-Technology Balance 3. Education Transformation 4. Long-Term Feasibility
7.	1. Virtual Collaboration & Engagement 2. Accessibility & Inclusivity 3. Experiential Learning 4. Technology-Driven Learning	1. Adoption & Affordability 2. Market-Driven Expansion 3. Technological Evolution 4. Long-Term Feasibility
8.	1. Sustainability 2. Governance 3. Cybersecurity 4. Collaboration for Safe Implementation	1. Sustainability 2. Governance 3. Cybersecurity 4. Decentralized Metaverse Challenges
9.	1. Education 2. Business 3. Gaming	1. Gaming and Entertainment 2. Education 3. Business Applications

4. Healthcare

4. Cross-Industry Convergence

5. Art and Culture

Note. SMEs = Subject matter experts.

6. Discussion

The research questions to be answered in this study included 1) How are SMEs and AI-generated views on the development and future of the metaverse different, 2) What are the main opportunities and obstacles of metaverse implementation in business and education, 3) How the metaverse influences virtual collaboration, digital identity management, and economic models in industries, and 4) What ethical, technological, and regulatory systems are required to make the metaverse sustainable. Part 6.1 will be devoted to the differences between the SMEs and AI-based perspectives, i.e., ChatGpt. The opportunities and obstacles of implementing the metaverse in the fields of business and education will be discussed in Section 6.2 that implies IQ-wide thematic analyses. In addition, this section will be used to reflect the effects of the metaverse on virtual collaboration, digital identity management, and economic models across industries alongside exploring ethical, technological, and regulatory frameworks that are required to make the metaverse a sustainable part of business and education.

6.2. Thematic Analyses of Responses from SMEs and ChatGpt

6.2.1. Themes Unique to SMEs

These themes were in line with the dramatic role that the metaverse had to play in manufacturing and industrial use where virtual worlds allowed companies to model and optimize intricate processes before them, then put them into practice. With digital twins, and models of physical objects, industries would be able to analyze real-time data and watch the state of things, which would enhance efficiency and minimize costs within the manufacturing process. Such an integration enabled predictive maintenance, product design testing, and real time, geographically separated team work. Experiential business interaction also occurred in the metaverse whereby companies interacted with customers, partners, and employees using immersive virtual worlds. These interactions were not limited to the old fashioned virtual meetings but provided more dynamic, interactive interactions which not only increased interactions but also created new stronger business relationships. Through VR, AR, and other immersive technologies, companies developed real-life product demonstrations, online trade show, and client-specific solutions, which additionally reduced the barrier between the virtual and real worlds (Schroeder et al., 2023). Nevertheless, with even more extensive involvement of business in the metaverse, balancing digital experience with a real one was also important to preserve the trust, creativity, and collaboration.

Although business transformation potential was enormous, there were still various challenges, especially in terms of the phenomenon of the decentralization of the metaverse. The problems of ownership, privacy, and interoperability were noted as a serious issue because more industries were shifting to virtual space. In the absence of proper regulatory frameworks and protocols, the businesses would have been exposed to a fractured virtual environment which would restrict cross platform interaction and data transfer. In addition, there was no unity in the standards of virtual property ownership and protection of privacy, which posed important legal and ethical concerns, especially when companies were building digital property and handling consumer

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information on these platforms. Another effect of this decentralization was the convergence of industries where various industries such as entertainment, healthcare, technology, and education found a means of collaborating and innovating in common virtual space. When industries collided in the metaverse, they needed to create rules on how to share data, secure intellectual property rights and ensure privacy to make interactions uniform and encourage creativity without focusing on the issues of digital fragmentation and governance (Koos, 2022).

6.2.2. *Themes Unique to ChatGPT*

The articulation of these themes mirrored closely the development of the metaverse, and how it developed greatly compared to the earlier *Snow Crash* authored by Neal Stephenson in 1992, which introduced the concept of the virtual world where people could communicate with one another in form of an avatar. This idea was the basis of current virtual environments that grew out of the gaming sector to include a wide spectrum of industries. These virtual spaces evolved into active and interactive digital spaces in the course of the years through such platforms as *Second Life*, and newer still, through *Horizon Worlds* created by Meta. Development of new technologies, including artificial intelligence (AI), virtual reality (VR), and blockchain, only promoted the metaverse as a means of providing immersive shopping experiences and personalized learning settings. As a retailing approach, a virtual showroom enables users to touch the items in 3D environments, increasing interaction with them and creating a more interactive buying experience compared to platforms with conventional online stores (Choi et al., 2023). In addition, these experiences were becoming more personalised using AI-driven systems which could make personalised recommendations depending on the preferences and behaviour of the user. This did not just apply to consumer shopping and this transition to immersive and personalized settings, but also to education, with the metaverse designed to enable interdisciplinary, gamified learning environments that helped students become engaged and develop skills (Felix et al., 2022).

As the metaverse was still expanding, it happened that collaboration among various stakeholders was the most crucial element to provide a safe and ethical implementation of it. Governments, technology firms, and regulators were forced to collaborate to help resolve critical issues like privacy of data, cybersecurity and ownership of digital information so that users could navigate such virtual worlds safely. Moreover, AI as the integration should be closely regulated in both e-commerce and education to prevent the problem of bias, abuse, and equity. It was necessary to have multi-stakeholder cooperation to develop structures that were used to control such complex systems and provide a safe user experience, as well as encourage innovation and growth. The future of the metaverse was determined by its capacity to strike a balance between immersive technologies and responsible governance to make sure that personalized experiences of learning and virtual business were affordable, fair, and safe to everyone (Janssen, 2022).

6.2.3. *Themes Shared by Both ChatGPT and SMEs*

The response similarities between ChatGPT and Webinar responses revealed that the metaverse development was largely propelled by the advancement of some of the most important technologies, such as augmented reality (AR), virtual reality (VR), artificial intelligence (AI), blockchain, and spatial computing. The combination of these technologies formed an easy and immersive realm of the digital world, where individuals were able to communicate, create and

conduct transactions in new manners. AR and VR offered the required amount of sensory immersion enabling the user to feel as though they were in a virtual world yet they could make choices without necessarily being in the location, and AI-assisted customization and smart decision-making in the virtual worlds themselves. The ownership and transactions in the metaverse were redesigned through the blockchain technology to provide safe and transparent exchanges using cryptocurrencies and NFTs (non-fungible tokens). Spatial computing enabled the combination of the digital and physical space, which made interaction possible and connected the two worlds (Janssen, 2022). With the coming together of these technologies, it not only influenced the creation of the metaverse but it also propelled other sectors like entertainment, e-business, and education opening a massively large pool of opportunities to both businesses and their users.

The most notable aspect of the metaverse was the establishment of virtual identities where individuals came up with on-line characters to socialize with as well as to work with. These online personas were the continuations of the physical identities of users, and it was possible to interact personally, express oneself, and engage in different virtual communities. These avatars provided socialization, cooperation and entertainment in the social life of people as it allowed people to establish links despite geographical barriers. Virtual identities can be useful in the professional world; now, people can participate in meetings, conferences, job fairs without being physically present, which creates opportunities of remote work and online networking. The emergence of virtual identities also introduced changes to the business models because businesses established new approaches to branding digitally using these personas to communicate with consumers in meaningful manners. Moreover, the avatars had an economic and business impact in the metaverse, as digital goods and services became more widespread using cryptocurrency payments, virtual commerce, and selling branded virtual goods (Mozumder et al., 2023).

Although the metaverse had a promising potential, profound ethical and practical issues that were to be addressed were to guarantee the sustainable and inclusive development of the metaverse. Among the most urgent problems, privacy issues, digital addiction, and regulating the situation were raised as users started exploring virtual space. Privacy of personal data was particularly a big issue since the users could be used to make business out of their activities and interactions in the metaverse without proper protection. Moreover, the metaverse made people addicted to digital worlds since individuals depended on virtual worlds more both socially and professionally, which potentially reduced real-life relationships. These issues alongside the necessity of regulations to regulate virtual real estate, intellectual property, and financial operations highlighted the essence of establishing effective governance systems. Another opportunity introduced by the metaverse was the sustainability issues, since there was no need to travel physically as the physical world, and this resulted in the footprint being lower. Nevertheless, the ecological footprint of having large digital infrastructures and having equal access to the technologies also had to be taken into account (Dwivedi et al., 2022). With the development of the metaverse, it became necessary that the stakeholders worked together to develop a solution, which would be innovative, ethical, and economical and was environmentally friendly.

6.3. Interview Question-wide Thematic Analyses

In the case of IQ1, both ChatGPT and the webinar focused on the technological development of the metaverse though they differ in their orientation on conceptual background and practical application. ChatGPT also emphasized the historical background of the metaverse, which goes back to Snow Crash (Stephenson, 1992) and other platforms such as Second Life and Minecraft, in line with the academic discussion of science fiction as a pretext to technological progress (Dionisio et al., 2013). On the other hand, the metaverse introduced in the webinar was a intersection of AR, VR, AI, and spatial computing, which is considered by literature to be a product of several technologies that keep developing (Mystakidis, 2022). The two responses did not ignore the economic implications, but ChatGPT was interested in corporate investments (e.g., Facebook, Roblox) whereas the webinar considered blockchain and cryptocurrencies as a transaction facilitator, which corresponds to the studies of digital economies (Dwivedi et al., 2022). The other important divergence was user identity - the webinar represented avatars as a prerequisite of virtual interaction (Cheung, 2022), and ChatGPT did not dwell on this matter in detail. In general, the ChatGPT was conceptual and historical in framing but the webinar was more technical and functional in analyzing, both of which are representative of the multifaceted nature of the metaverse.

Both answers in relation to IQ2 touched upon the transformative significance of the metaverse in business, with virtual cooperation and customer communication being the key focus. ChatGPT was more efficient, operationally advantageous, and organized (as oriented to training and data-driven decision-making), whereas the webinar emphasized an immersive involvement and digital corporate identity (according to the literature on the corporate presence in virtual worlds), (Lopez-Cabarcos and Pineiro-Chousa, 2024). Both answers recognized the use of immersive marketing tactics, which are similar to research on consumer engagement (Mystakidis, 2022). Nevertheless, the webinar was the only one in which the organizational identity and virtual brand presence were highlighted. All the points of view together gave a general picture of the business application of the metaverse.

In terms of IQ3, both answers highlighted the effects of the metaverse on education, including immersion, collaboration, and accessibility. ChatGPT explained interactive learning with the help of virtual simulations and AI-oriented education, which is consistent with the studies of immersive engagement (Mystakidis, 2022). On the same note, the webinar also emphasized experiential learning but with more emphasis on decision-making and problem-solving skills, suggesting research on cognitive flexibility (Kavanagh et al., 2021). Another significant difference was the interpretation of the reality in that the webinar understood the metaverse as a synthetic yet meaningful learning space, whereas ChatGPT positioned it as a continuation of the blended learning paradigm. Also, the webinar covered augmented and mixed reality extensively, which ChatGPT did not directly address, which is one of the areas of debate within the educational technology sector (Dwivedi et al., 2022).

In the case of IQ4, both answers ranked the metaverse as a disruptive educational solution, but they had differences on whether it needed to complement or replace conventional learning. ChatGPT was focused on gamification and adaptive learning that was AI-driven, and the webinar was on the topic of AI-led experiential training in other domains, such as medicine, which is in line with the literature on AI-driven simulations (Kavanagh et al., 2021). Although both views acknowledged the use of AI in personalized learning, the webinar was the only one that suggested

AI tutors who would provide real-time feedback, creating concerns regarding the ethical controls and machine-based learning (Selwyn and Aagaard, 2021). ChatGPT in its turn emphasized cross-functional cooperation and gamification (Hamari et al., 2019). In general, both viewpoints acknowledged the disruptive nature of the metaverse but disagreed about the need to combine it with or completely transform conventional education (Dwivedi et al., 2022).

In the case of IQ5, the adoption of the metaverse into the business offers tremendous opportunities and challenges that are influenced by technological, financial and organizational aspects. Both answers acknowledged technical barriers, although ChatGPT identified high costs, regulatory uncertainty and the difficulty in adopting it by users, the webinar identified workforce dynamics changes and industry-focused applications. This is in line with the study that indicates that the adoption of metaverse is largely reliant upon industry requirements and labor flexibility (Dwivedi et al., 2022). The two views saw the economic and operational importance of the metaverse in a light of the latter where ChatGPT saw it as a transformation that was heavily investment-intense and required financial assets and expertise in the field, the webinar presented the viewpoint of structural business shifts, especially in remote employment and business. The literature validates the notion that the companies that transfer to the operations of the meta verse will have to be restructured heavily, in terms of workforce management and customer engagement tactics (Mystakidis, 2022). One of the major differences was the debate on data privacy and the risks of cybersecurity. ChatGPT emphasized data breaches and identity theft as the key issues, which aligns with the literature on cybersecurity vulnerability (Kshetri, 2022). The webinar, in its turn, was dedicated to industry-specific metaversion integrations and was not directly concerned with security issues. Data protection and infrastructure security are essential whereas industrial industries have seen advantages of virtual simulations (Gursoy et al., 2022). Both points of view concurred that companies have to go through the financial, technical, and organizational obstacles, but they varied in the focus on user adoption, industry-specific applications, and security threats. The changing regulatory frameworks and cybersecurity policies are to be discussed in future research so that they could be adopted more easily.

In the case of IQ6, technological, social and ethical issues are associated with the deployment of the metaverse in the education sector. Although both answers were related to technical barriers, ChatGPT involved networking, system integration, and interoperability, whereas the webinar concerned hardware limitations, AR developments, and financial limitations. This is in line with the studies that high-performance AR/VR devices can still be identified as one of the main limitations in the use of metaverse in education (Capatina et al., 2024). Both responses were aware of user accessibility as a major challenge but provided different points of view. ChatGPT has mentioned the equity issue, especially in the case of students in under-served regions, whereas the webinar has examined the psychological aspect of metaverse-based education and students in distinguishing between online and real worlds. Research indicates that digital natives are not always digital literate and do not possess critical thinking to operate in immersive settings (Selwyn and Aagaard, 2021). Another area of disagreement was pedagogical transformation. ChatGPT presented it as a dilemma concerning teacher education and compliance with regulations, and the webinar adopted a long-term view of the argument that AI-based teaching models redefine educational roles. This is indicative of current controversies whether AI-enhanced virtual classrooms can substitute the traditional approaches or not (Zawacki-Richter et al., 2023). The influence of the metaverse on education is based on the

balance between the immersive learning and accessibility, moral accountability, and long-term viability. Further studies are needed to find ways in which digital literacy frameworks would equip students with metaverse-based learning and still provide ethical protection and pedagogy efficacy.

When it comes to IQ7, the business education in the metaverse is defined by technological advances, demand, and access. Both answers admitted it was a transformational potential, though ChatGPT put its emphasis on virtual collaboration, accessibility, and immersive learning and the webinar on market-driven growth and low cost. This is in line with the studies that propose that metaverse-based learning enhances engagement and problem solving abilities by using simulations and real world implementations (Dwivedi et al., 2023). These two answers pointed to technology as a force, and ChatGPT narrowed it to AI-based learning scaffolds and the webinar to blockchain and fintech usage in the context of business education. It is consistent with the research showing that DeFi and smart contracts may transform business operations and training (Mozumder et al., 2023). One of the major differences was the time of mainstream adoption- ChatGPT was based on slow adoption, whereas the webinar implied that adoption would rely on cost and company investments. It has been suggested that metaverse integration could be quickened by corporate-led adoption as opposed to educational institutions on their own (Koohang et al., 2023). Business education through the Metaverse has to be pedagogically effective, affordable, and accessible and overcome the issue of digital illiteracy as well as ethical considerations.

The effects of the metaverse on sustainability, governance, and cybersecurity are opportunities of challenge in response to IQ8. The two mentioned responses both focus on the benefits of sustainability, but ChatGPT focuses on fewer carbon footprints due to virtual collaboration and energy-efficient design (Kshetri, 2022). The webinar reflected this but recommended it could only be adopted on the willingness of the user to substitute physical interactions (Schroeder et al., 2023). The metaverse has been found to have the potential to reduce environmental influence (Janssen, 2022). The issue of governance came into the limelight. ChatGPT has also indicated that regulatory frameworks are necessary to guarantee transparency, data privacy and protection of intellectual property (Jung and Kim, 2023). The webinar also expanded this topic to NFTs, decentralized systems, and cross-platform interoperability issues (Felix et al., 2022). In literature, the concept of governance frameworks that deal with ownership of digital assets and cross-platform regulations are highlighted (Koos, 2022). Another major theme was that of cybersecurity. The risks of data breach were mentioned by ChatGPT, whereas identity fraud and avatar verification were emphasized in the webinar (Gandhi et al., 2023). These issues are in line with the demands to enforce more encryption and privacy policies in the virtual worlds (Wang et al., 2023). Although both answers have recognized the transformative nature of the metaverse, they highlighted the necessity of very strong regulation and protection. When it comes to the metaverse substituting social media, both sides concurred in the emergence of a new form of digital interaction. SME 3 implied that its immersive character might make the traditional social media redundant (Dwivedi et al., 2023), and SME 2 pointed out the investment by companies such as Meta as a sign of its domination in the future. Social media trends indicate that the social media are moving closer to what can be termed the metaverse, with virtual reality and avatars (Jung and Kim, 2023) potentially enhancing more meaningful interactions (Koohang et al., 2023).

Lastly, IQ9 focused on the transformative nature of the metaverse in various fields of subjects. Both answers pointed out its use in education, with ChatGPT stating the importance of immersive learning and the availability of resources (Zawacki-Richter et al., 2023) and the webinar focusing on simulations in the industry and integrating e-learning (Capatina et al., 2024). Both replies also addressed its business uses but ChatGPT was more concerned with cost-saving strategies and telecommuting, whereas the webinar was about knowledge management and distant training (Schroeder et al., 2023). Both responses featured the gaming and entertainment industry, and ChatGPT noted immersive games (Mystakidis, 2022), and the webinar featured motion-sensing technologies (Felix et al., 2022). One of the most notable differences was that the webinar was dedicated to the cross-industry convergence, which placed the metaverse as a hub to interconnect industries such as automotive engineering, healthcare, and fintech (Koos, 2022). Although both the views recognized its extensive reach, the webinar focused on industry convergence, and the ChatGPT was more focused on the transformation of individual sectors.

7. Conclusion

With respect to RQ1, SMEs and AI-generated knowledge concerning the future of the metaverse have both practical and theoretical views. SMEs target business opportunities, technology infrastructure, and economic conditions such as the use of cryptocurrency and regulations with the focus on stakeholder cooperation to implement it. The insights created by AI see a bigger picture, talking about societal, educational, and ethical consequences, such as AI-based learning, and digital equity. Both of the views are concerned with collectives of sustainability and cybersecurity, but AI offers a more detailed examination of interconnectivity with the challenges of society. In the case of RQ2, there are opportunities and challenges associated with implementing the metaverse in the context of business and education. Businesses are threatened with technological and financial hurdles, and will need to invest in skills and restructuring of its business operations. SMEs focus on the dynamics of the workforce and the applications of the industry whereas AI focuses on regulatory uncertainty. When it comes to education, there are technological and accessibility concerns that are acknowledged by both of these perspectives, yet AI focuses on digital equity, and SMEs consider psychological effects. The question of pedagogical transformation is also discussed, where AI proposes training and adherence to teachers, and SMEs anticipate AI-inspired models of teaching. The issue of data privacy and security is a common one. With regard to RQ3, the influence of the metaverse cuts across various areas, such as education, business, healthcare, and entertainment. It promotes interactive learning, remote working, and international creativity and minimizes expenses. Remote consultations and simulations are beneficial to healthcare, whereas interactive experiences are beneficial to entertainment. The developments transform the economic models and digital identity management in industries. In the case of RQ4, it is focused on identity and virtual presence, and avatars influence how people interact. The metaverse helps in promoting social good, but it has ethical issues of privacy, security, and regulation. With the convergence of industries, there will be the emergence of interdisciplinary opportunities which will require regulatory measures towards responsible adoption.

8. Limitations of the Study

Although this paper offers important information about the emergent role of the metaverse, it has some major limitations that cannot be ignored. The main disadvantage is the level of data sources, which was based on AI-generated insights and webinar discussions. Although AI responses provide a theoretical account of the global trends, the discussion in the webinars is based on the opinions of a particular segment of experts, which perhaps restricts a wider representation of stakeholders. Consequently, the external validity of the research is limited due to the size of the sample and demographic orientation. Another limitation is on the changing nature of the metaverse. It is a representative of a current state concerning the three domains of virtual reality, artificial intelligence, and blockchain, so this research represents only a picture of what is going on today. There can be emerging challenges and opportunities with the advancement of technology and this requires constant research to ensure that the organisation remains relevant. Moreover, AI-generated content and expert debates can be biased in terms of technology, which can favor specific industries or applications and exclude others. Other weaknesses include the lack of empirical data. The research is more of a synthesis of theoretical knowledge and opinions of experts instead of basing on the practical case studies or experiment studies. Although these views bring about sight, they are not empirically validated, and some of their findings are speculative. Research focused on the long-term societal, economic and ethical impacts of the metaverse should take the form of interdisciplinary and longitudinal research to track the consequences of the metaverse over time. Exploring different stakeholder views and policies will assist in designing the policies that will guarantee privacy, security, and equal access to metaverse technologies.

9. Practical Implications and Future Directions

The metaverse offers game changers and disruptors in different industries. In learning, it can improve experiential learning, distance learning, and training by simulation, which could result in more individualized learning (Kavanagh et al., 2021). Nonetheless, it is important to make sure that digital inclusion and equitable access prevail (Selwyn & Aagaard, 2021). The metaverse can be used in business to improve efficiency in business operations, decrease travel, and increase collaboration among scattered teams. Virtual storefronts and property tours can be useful in such industries as retail and real estate, but organizations should solve the problem of cybersecurity risks and the use of personal data (Dwivedi et al., 2022; Kshetri, 2022).

Empirical data on actual metaverse applications in industries should be collected in future studies. Businesses and educational institutions can have case studies that further explain the adoption-related issues and difficulty in specific sectors. Longitudinal studies are also necessary due to its quick development in order to monitor the trends of integration, sustainability and governance challenges. The inclusion of a wider range of stakeholders, such as various users, policymakers, and ethicists to offer them a broader perspective on the implications of the metaverse. Moreover, studies on ethical and regulatory guidelines should be conducted in the area of privacy, security and fair access. The effects of the metaverse on human interaction, identity and community-building are under-researched and hold the need of studies on the effects of the metaverse on social dynamics, mental health, and behaviors in the real world. Knowledge of both the good and bad aspects will assist in the creation of an inclusive and responsible future of the metaverse. More research should be carried out regarding the role of

governments, international organizations, and corporations in the regulation of the metaverse to develop a set of policies that would guarantee ethical and safe interactions in the virtual environment.

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Appendix A

Interview questions:

1. How has the metaverse evolved within your industry, and what key developments have shaped its adoption?
2. Based on your experience, how is the metaverse currently being utilized in business organizations, and what potential applications do you foresee?

3. What impact has the metaverse had (or could have) on education in your field, and what challenges might arise in its implementation?
4. In what ways do you see the metaverse complementing or transforming traditional educational methods, and what are the key barriers to its integration?
5. What key challenges have businesses faced (or might face) in adopting the metaverse, and how can they be addressed?
6. From your perspective, what are the main obstacles to integrating the metaverse in education, and how might institutions overcome them?
7. How do you envision the metaverse shaping the future of business education and corporate training, and what factors will influence its success?
8. How do you see the metaverse influencing issues like sustainability, governance, and cybersecurity in your industry, and what measures are needed to address potential risks?
9. Based on your expertise, which industries or disciplines are best positioned to benefit from the metaverse, and what factors will determine its success in those areas?