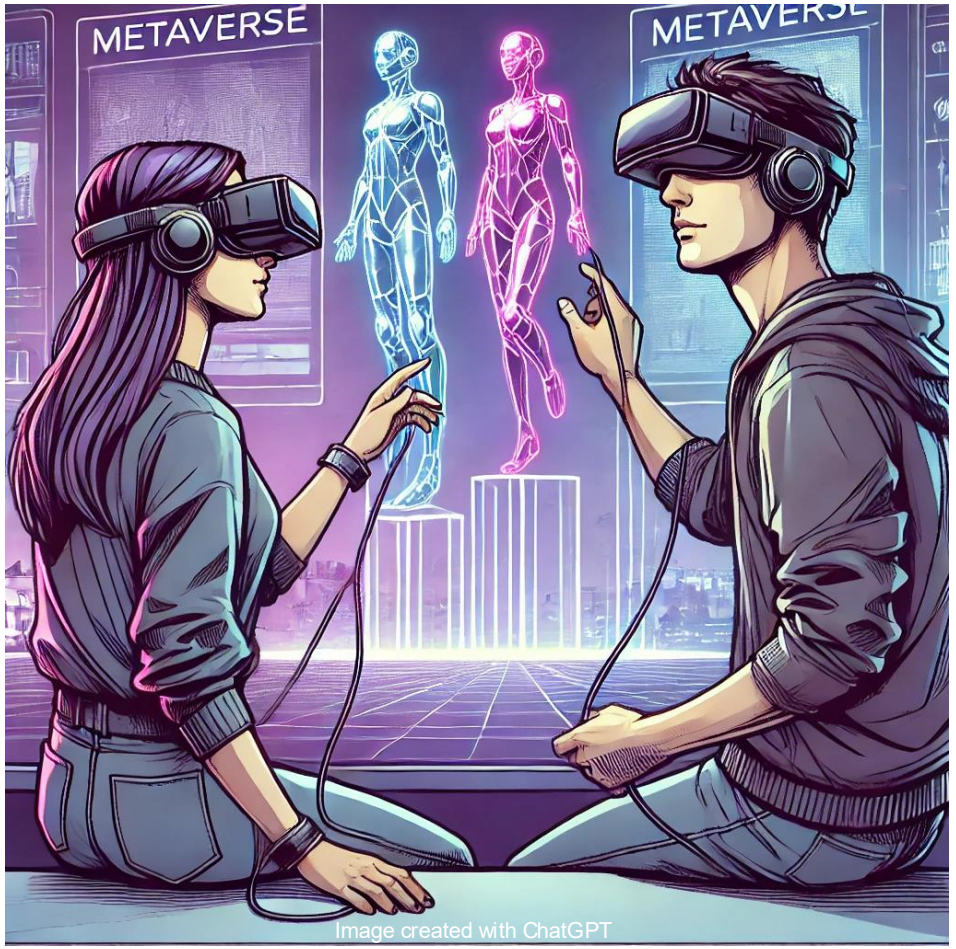
Universität Zürich[UZH]

Fachhochschule Graubünden
University of Applied Sciences

Tackling Socio-Ethical Challenges and Seizing Opportunities of Business Hubs in the Metaverse



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Introduction I

🌐 **What is the Metaverse/Virtual Reality (VR)?**

A network of digitally mediated spaces enabling **immersive, shared, real-time experiences**

👥 **Users**

171 million active users worldwide (Demandsage 2025)

🚀 **Business Potential**

- Create and expand virtual hubs
- Offer products and services globally

Introduction II

💬 **Social Impact**

- Changes how people relate to themselves and others
- Risk of **polarization** vs. opportunity for **inclusivity**

⚖️ **Ethics Perspective**

Without oversight, **positive potential is lost** and **negative effects grow** → Need for **Regulation and Ethical Guardrails**

Project Proposal

Part 1/3

Project Overview

- **Research Gap**

Much research has focused on the economic aspects of the metaverse. The **social and ethical dimensions** received limited attention.

We aim to address this gap by providing insights for the responsible development and commercialization of the metaverse

- **Goals**

1. **Better understanding** the issues and difficulties that companies experience in VR interactions
2. **Submitting an application** for a larger funding scheme, should we find companies available for collaboration within the Innosuisse framework

Team Members

Eleonora Viganò

Christian Hauser

Yasaman Asgari

Muriel Leuenberger

Gianluca Miscione

Activities

- Conducted **qualitative research** on personnel working in companies using or developing VR
- Participated in the *Innovation Booster AI call for participation* with the **proposal** "Responsible Business in the Metaverse: Social Dynamics and Ethical Considerations". Despite outreach efforts including Swiss Metaverse Association, the initiative did not proceed to the implementation phase due to limited industry engagement
- Viganò and Hauser joined the UZH **community** *Openverse Initiative* (Center for Leadership in the Future of Work)
- Viganò and Hauser contributed to an **article** on to democratize replicability in XR research (under review)
- Viganò appointed as **Ethics Advisor** for an SNF project proposal on training nursing professionals with VR simulations submitted by SFUVET Lugano and ZHAW Center for People & Technology (under review)

Research Findings

What we did: Research details

- **Qualitative research**

7 **semi-structured online interviews** of:

- Personnel working in companies using VR solutions (n=1),
- CEOs of companies developing VR solutions (n=5)
- Academic expert (n=1)

- **Thematic analysis of the transcripts**

- 1 interview independently coded by two researchers
- 6 interviews coded by one researcher

7 Themes

1. Definition of VR/metaverse
2. Pros and cons of VR
3. Companies and VR (what they do in VR, their requirements, their benefits)
4. Envisioned future
5. Ethical issues
6. Remedies to the ethical issues
7. Reality of negative and neutral experiences in VR

Definitions: Metaverse and VR

What do people think the Metaverse is? To me, it's just a term that encompasses all virtual worlds and virtual usage. In my opinion, it has been over-branded. 'Metaverse' could be replaced by 'virtual worlds' or 'extended reality' to encompass more (Subject (S) 7)

Pros of VR

- There are no physical laws (S3, S4); this allows one to include people from all over the world, avoid travels, move heavy machinery and avoid dangers
- It is more interactive than current ways to present products to clients (e.g., Power Point presentations)

You can be literally anywhere, so the only limitation is your imagination (S4)

Cons of VR

1. Uncomfortable equipment (S4, S6, S7)
2. Motion-sickness (S6, S3, S1)
3. Cost of the technology (S4) → only big companies can afford it
4. Digital divide (S1, S2, S3, S4)

To benefit from that enhanced interactivity, all the people need to be trained in some way or used to being in this environment. As soon as one person is not used to it, they bias the whole scenery and also get excluded somehow (S1)

Companies and VR I

What companies currently do in VR?

- Interacting with potential clients and showing one's products (S1, S5, S2, S7)
- Training employees (S1, S7, S3)
- Collaborative work (S5)

What are the advantages of VR for companies?

- Accessibility from any geographical location (S1, S3, S4)
- Better cognitive support than online meetings and 2D presentations (S1, S4)
- Cost saving in: delivery and renting a space (S3); reducing material waste (S7) and dangers (S7, S1, S3); personnel training (e.g., Lufthansa's training for flight attendants); and business travels (S5)

Companies and VR II

What are the companies' requirements about VR?

- Basic requirements: Create a multiplayer space with specific visual design (S1)
- No requirements for avatars (S1, S3), except for a country which asked avatars with conservative clothes for an international exhibition (S3). Thus, a developer said they just wait and see what clients ask for (S7). Another developer just provides basic gray avatars that are the same for everyone (S3), another offers only one neutral female and one neutral male avatar
- Developers are reluctant to offer many options because creating avatar configurators is expensive (S7) and companies "*don't understand what they want or don't know what is possible already*" (S3)
- In case of schools, their requirements are: limiting access to some website (S3, S2), limiting verbal harassment in the chat (S2), limiting tailoring aspects of the avatars (e.g., what can be written on the avatar's T-shirt) (S2)

Envisioned future

- VR success in business depends on the development of the technology: the equipment must become more comfortable, avoid motion sickness, and be technically scalable (S6, S1, S4)
- The use cases that are profitable will gain more traction: training (S7, S3), schooling as complementary tool (S2), collaborative work in branches geographically scattered (S5) (in which VR will substitute business travels and meetings on online platforms (S6)), and gaming (S5)
- Augmented reality will be more likely to be accepted than VR (S7)
- VR will help people with social anxiety (S5)
- There will be a couple of dominant players providing hardware and software (S4)
- A new service will emerge: mediating and resolving conflicts of companies making transactions in VR (S6)

Ethical issues I

- VR with **open rooms** (where anyone can access) have **no rules** (S3, S5, S4, S6), everyone can join (S5): "*There's so much freedom that the freedom obstructs itself*" (S6)

- Mechanisms of **social sanctions** (e.g., social disapproval) are **powerless** because avatars cannot be traced back to a physical person (S3, S4, S6) → **Anonymity** → This is similar to the ring of Gyges, which grants its owner the power to become invisible, thus enabling one to behave unethically without any social consequence (Plato, *Republic*)

- **Platform moderation features** such as muting or reporting to the administrator – that usually can expel/block the avatar – are **weak** because the person behind it can create a new avatar (S6)

Ethical issues II

- **Difficult to provide evidence** of misbehavior: in social media one can take a screenshot, in VR a person should record what the avatar says (verbal attacks are the most common) (S3)

- **Absence of guidelines** and best practices (S7, 6): "*it would be helpful to see how other people use it. As we didn't have access to anything like this, we asked people who were already working in the field about their experience with it. If you're not following faculties who actually do that kind of stuff, the spectrum is quite narrow when it comes to asking for best practice*" (S7)

Remedies to the ethical issues

- As long as the **VR room is close**, one can set some rules that prevent harms in the VR such as monitoring tools: "*This is kind of a game where you need to define certain actions*" (S1)
- For an organization, one can link the headsets user account to the employees' email accounts (S3)
- Creating **rooms with different** sets of **rules** and certifications: "*If a bubble complies with certain rules, it gets a label from an auditing firm that says it abides by certain rules. Therefore, I, as a user, can understand what is expected of me in this room*" (S6)
- Providing **assistance** to the VR users "*What would be helpful as well is to have somebody you can ask about this. If you're unsure and don't know how to do something. Because sometimes people didn't know what to do*" (S6)

Future Research Pathways

Emerging research questions

- In our sample, **verbal attacks** were **felt as real** by the victims ("*sometimes we don't get it how in the Metaverse, as an avatar, you can feel bothered by someone else. And then suddenly it was very real*" S6). This is in line with VR users' experience of rape attempts[1].
- By contrast, everyday exchanges in the VR are considered still not as realistic as encounters in real life ("*difficulty to be emotionally connected*" S5, "*it cannot substitute the value of the face-to-face discussion and understanding and empathy*"). Yet "*interactivity is closer to reality than on a 2D platform or computer*" (S1)

→What makes virtual harm feel real while virtual connection doesn't?
→What makes a VR encounter feel like a 'real' encounter?
→Can virtual spaces be designed to enhance positive emotional depth?

[1]Oppenheim (2022) "Woman reveals 'nightmare' of being 'gang raped' in virtual reality", *Independent*; Patel (2024) "I was raped in virtual reality", *The Telegraph*; Rydzewski (2025) "Between Pixels and Predators: The Landscape Of Sexual Assault And Rape In The Metaverse", *FIU Law Review*

Future research avenues I

The unruled world of VR

VR enables user interactions but lacks effective social sanctions

Research Focus: Behavioral Norms in VR

Investigating tensions between:

- User expectations (similar norms as physical world)
- Provider intentions (establishing respectful guidelines)

Proposed Approach

- Investigate current state of rules in VR (expected, defined, enforced)
- Identify discrepancies between expectations and reality
- Develop guidelines to bridge gaps through improved expectation management, rule communication, and enforcement options

Future research avenues II

Bias and Discrimination in Immersive Environments

Virtual environments inherit real-world biases while creating new forms of avatar-based discrimination and heightened harassment risks

Research Focus

Investigating how biases, harassment, and discrimination manifest in VR, including:

- Avatar-based racism and distrust
- Heightened sexual harassment in immersive settings
- Identity transformation effects (‘whitening’, masculinization)

Proposed Approach

- Analyze how avatar identity modifications influence user experiences and behaviors
- Develop metaverse-specific safety norms and codes of conduct

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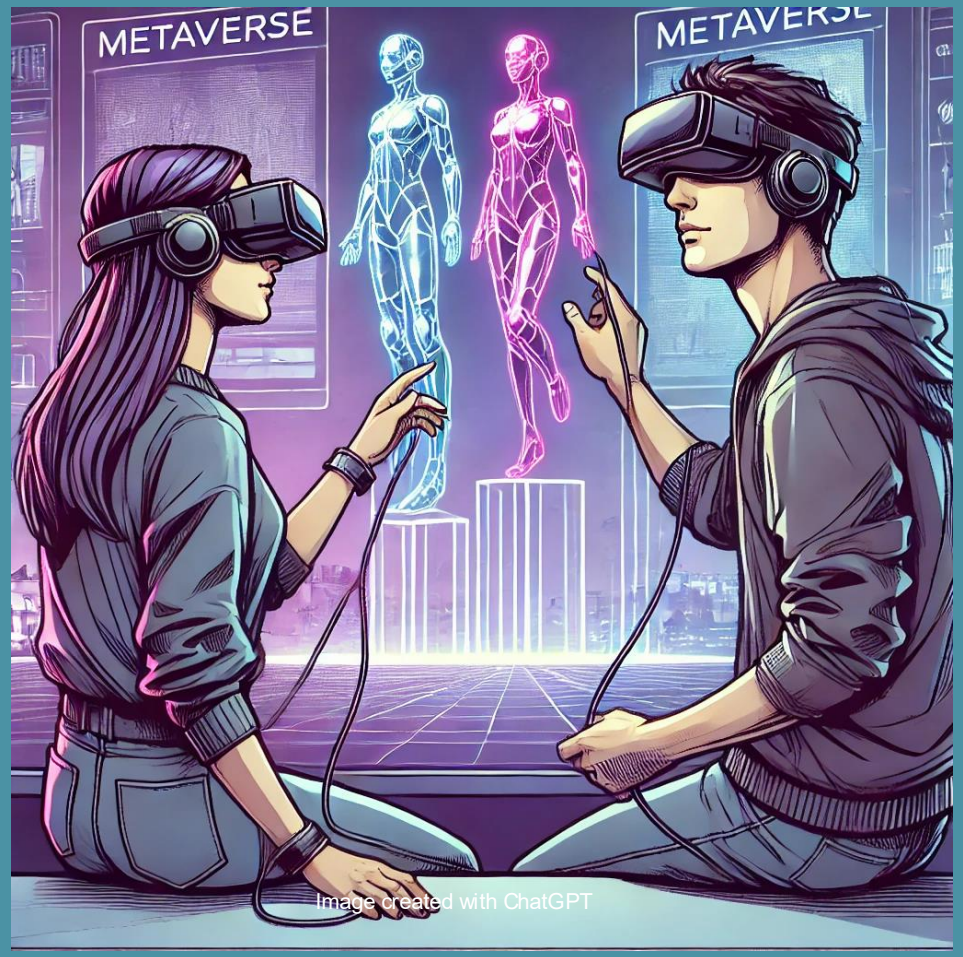

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