TECHETHOS

FUTURE ○ TECHNOLOGY ○ ETHICS

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VOTE CARD

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DIGITAL EXTENDED REALITY

This technology family includes innovations which extend the reality through digital means.

It changes how people connect with each other, how they interact with their surroundings and creates intuitive interactions with virtual realities.

TECH FAMILY


SOCIAL FACTORS

DATA CONTROL

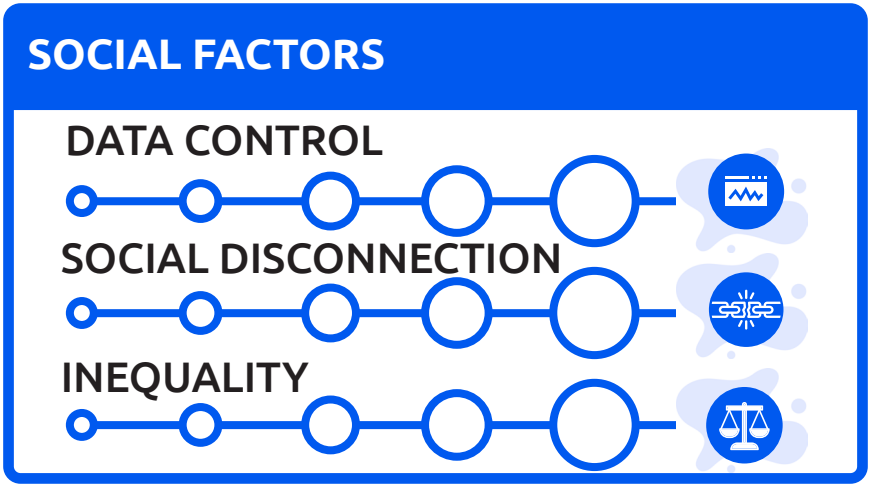
SOCIAL DISCONNECTION

INEQUALITY

WORLD CARD

NORMAL

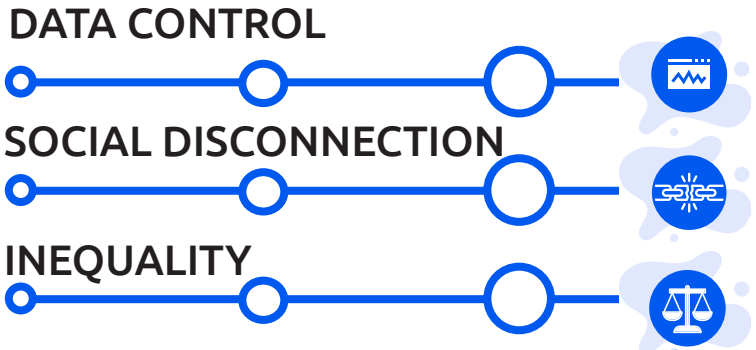

SOCIAL FACTORS



WORLD CARD

EASY

SOCIAL FACTORS



WORLD CARD

HARD

COUNCIL RESPONSE CARD

TECH AGE CARD ID:

ISSUE TO SOLVE:

ETHICS PROPOSITION:

COUNCIL RESPONSE CARD

COUNCIL RESPONSE CARD

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ETHICS PROPOSITION:

COUNCIL RESPONSE CARD

VIRTUAL REALITY

Virtual reality creates digitally simulated experience. Virtual reality environments are built by combining digital graphics and inputs to other senses.

TECH AGE 1

XR - I - 1

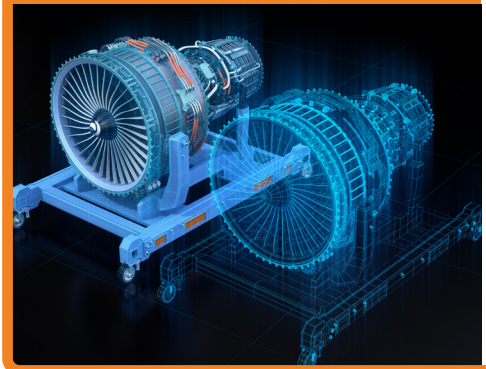
METAVERSE

A metaverse is a virtual environment where many people can interact, often with the help of digital avatars that can be customised. In these virtual spaces, people might be able to buy, sell and even own things.

TECH AGE 1

XR - I - 2

DIGITAL TWINS

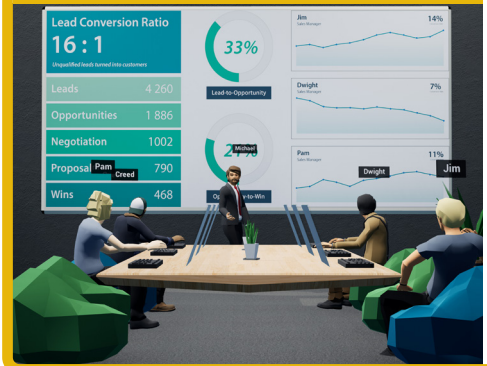


Digital twins are replicas of real objects, but in a digital space. They can be used to simulate, monitor, and improve the way their physical originals work. Engineers, doctors and aviators train with digital twins to better understand the systems they work with.

TECH AGE 1

XR - I - 3

REMOTE WORK



Co-workers can interact without being in the same location. Team meetings can be held in virtual and mixed realities with physical and avatar participants.

BENEFIT

People move away from the city and live closer to nature

ETHICAL CHALLENGE

Keeping a balance between work and life

VIRTUAL REALITY

TECH AGE 2

XR - II - 1

RELATIONSHIPS

Conveying facial expressions, vocal intonation, and speech-gesture coordination creates more intimate communication, reshaping long-distance relationships.

BENEFIT

People maintain constant attachment despite distance

ETHICAL CHALLENGE

Mismatch between avatar and person behind

METAVERSE

TECH AGE 2

XR - II - 2

CONSERVATION

Duplicating the real world helps us to preserve art, locations, and built worlds in their original forms.

BENEFIT

Regardless of what the future holds, art can be viewed in its original form

ETHICAL CHALLENGE

Abandoning authenticity

DIGITAL TWINS

TECH AGE 2

XR - II - 3

HEALTH

XR is used for many therapeutic purposes. For example, exposure therapy can help alleviate phobias, anxiety, or post-traumatic stress disorder.

BENEFITS

Patients can face their fears in a safe environment

ETHICAL CHALLENGE

Confusing realities

METAVERSE
VIRTUAL REALITY

TECH AGE 2

XR - II - 4

GAMING

XR enhances the feeling of being present in a game. The first-person perspective allows players to feel like the main character of their adventure.

BENEFIT

More appealing and even more relaxing games

ETHICAL CHALLENGE

Immersive games can be more addictive


METAVERSE
VIRTUAL REALITY

TECH AGE 2

XR - II - 5

TRAINING

XR applications are used to train different skills. This is especially helpful for high-risk or expensive training, like in medicine and aviation.

BENEFIT

Earning certificates more quickly and with greater flexibility

ETHICAL CHALLENGE

Transfering skills from XR to the material world


VIRTUAL REALITY
DIGITAL TWINS

TECH AGE 2

XR - II - 6

TOURISM

People can tour faraway places without leaving the convenience of their home. With the push of a button, they can visit other cities or wild places, like a mountain peak.

BENEFITS
Fewer income barriers to cultural exchange and travel

ETHICAL CHALLENGE
Increase in sedentary lifestyles

VIRTUAL REALITY
DIGITAL TWINS

TECH AGE 2

XR - II - 7

SOCIAL NETWORKING

The metaverse can be used as a new medium for social interactions. The internet opens doors to meet and interact in a social virtual reality.

BENEFITS

Keeping in touch with friends and family far from home

ETHICAL CHALLENGE

Harassement and abuse are difficult to tackle

METAVERSE
DIGITAL TWINS

TECH AGE 2

XR - II - 8

SECOND WORLD

A digital world could give people the chance to explore new identities or treat each other with greater equality.

BENEFITS
A chance to overcome pre-existing inequalities

ETHICAL CHALLENGE
Abandoning the real world

METAVERSE
DIGITAL TWINS

TECH AGE 2

XR - II - 9

How can we ensure fair working and economic conditions in the digital world?

New ways to make money in the digital world will emerge, like trading in goods and services, or even getting a job. However, the labour market and the economy in virtual realities may not be regulated in the same way as the material world.

WORKING CONDITIONS

REMOTE WORK

TECH AGE 3

XR - III - 1

How can we ensure that XR is not exploited for malicious purposes?

These technologies can be used for a purpose that differs from their intended one. Deepfakes, or avatars that may be indistinguishable from the avatars of real persons, can be exploited to manipulate, damage people's reputations, or influence society illegitimately.

DUAL USE AND MISUSE

RELATIONSHIPS

TECH AGE 3

XR - III - 2

How can the environmental impact of XR applications be contained?

Producing XR devices and infrastructures requires significant amounts of raw materials. Oil and gas reserves might be used to power them. The supply and use of these scarce resources causes damage to the environment and people.

ENVIRONMENTAL IMPACT

CONSERVATION

TECH AGE 3

XR - III - 3

How do we deal with the privacy concerns raised by XR?

XR devices can collect sensitive data about people's bodies, emotional reactions, and social interactions, such as eye tracking and heart rate measurements. They can also pick up data from the physical surroundings of the users' personal or work space.

PRIVACY

HEALTH

TECH AGE 3

XR - III - 4

Should nudging be controlled in XR?

In XR, strong immersion in a virtual environment can lead to more effective manipulation of users' behavior. Collection of data that users might remain unaware of, such as eye movement, temperature and heart rate, can be used to attract their attention and ultimately impact their ability to focus.

MANIPULATION

GAMING

TECH AGE 3

XR - III - 5

How can we ensure that XR developments are socially just?

XR often relies on high-cost devices developed based on the experiences of able-bodied people. This creates discrimination and social exclusion for those who can't afford the technology, who can't use it due to bodily constraints, or who do not have access to it due to economic inequalities.

DISCRIMINATION

TRAINING

TECH AGE 3

XR - III - 6

Should there be limits for immersion?

Users are not always given clear and transparent information on the nature of the environment in which they engage when they use XR applications: for example, which aspects they perceive are material and which are digital in nature, or when they enter and leave a virtual session.

TRANSPARENCY

TOURISM

TECH AGE 3

XR - III - 7

Should avatars simulate the presence of real people, including those who have died?

XR technologies make it possible to simulate the presence of deceased people by using data collected when they were still alive. Deepfake technologies can also be used to create avatars that are indistinguishable from the deceased.

DIGNITY


SOCIAL NETWORKING

TECH AGE 3

XR - III - 8

How can virtual misconduct be prevented or managed?

While morally reprehensible acts happen virtually in virtual social environments, they can have significant moral and psychological effects on the people behind the avatars, causing real harm.

RESPONSIBILITY


SECOND WORLD

TECH AGE 3

XR - III - 9

VIRTUAL REALITY

METAVERSE

DIGITAL TWINS

IMPACT CARD

AGE

1

- REMOTE WORK
- RELATIONSHIPS
- CONSERVATION
- HEALTH
- GAMING
- TRAINING
- TOURISM
- SOCIAL NETWORKING
- SECOND EARTH

IMPACT CARD

AGE

2

DISCRIMINATION

PRIVACY

WORKING CONDITIONS

RESPONSIBILITY

DIGNITY

MANIPULATION

DUAL USE AND MISUSE

ENVIRONMENTAL REDUCTION

TRANSPARENCY

IMPACT CARD

AGE 3

TURN SUMMARY

I. PLAYER ROUND

(1. TECHNOLOGY FAMILY)

2. TECH AGE EVOLUTION

3. OPEN DEBATE

4. CITIZEN WORLD COUNCIL DECISION

II. WORLD ROUND

1. IMPACTS

2. ETHICAL ISSUES

3. CITIZEN WOLRD COUNCIL RESPONSE

4. TECHNOLOGY TREE

5. END OF GAME?

TURN CARD

CREDITS

THIS GAME WAS DEVELOPED BY THE EU-FUNDED PROJECT TECHETHOS, BASED ON NEW RESEARCH CARRIED OUT BY ITS PARTNERS.

FOR MORE INFORMATION, VISIT:
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CREDITS