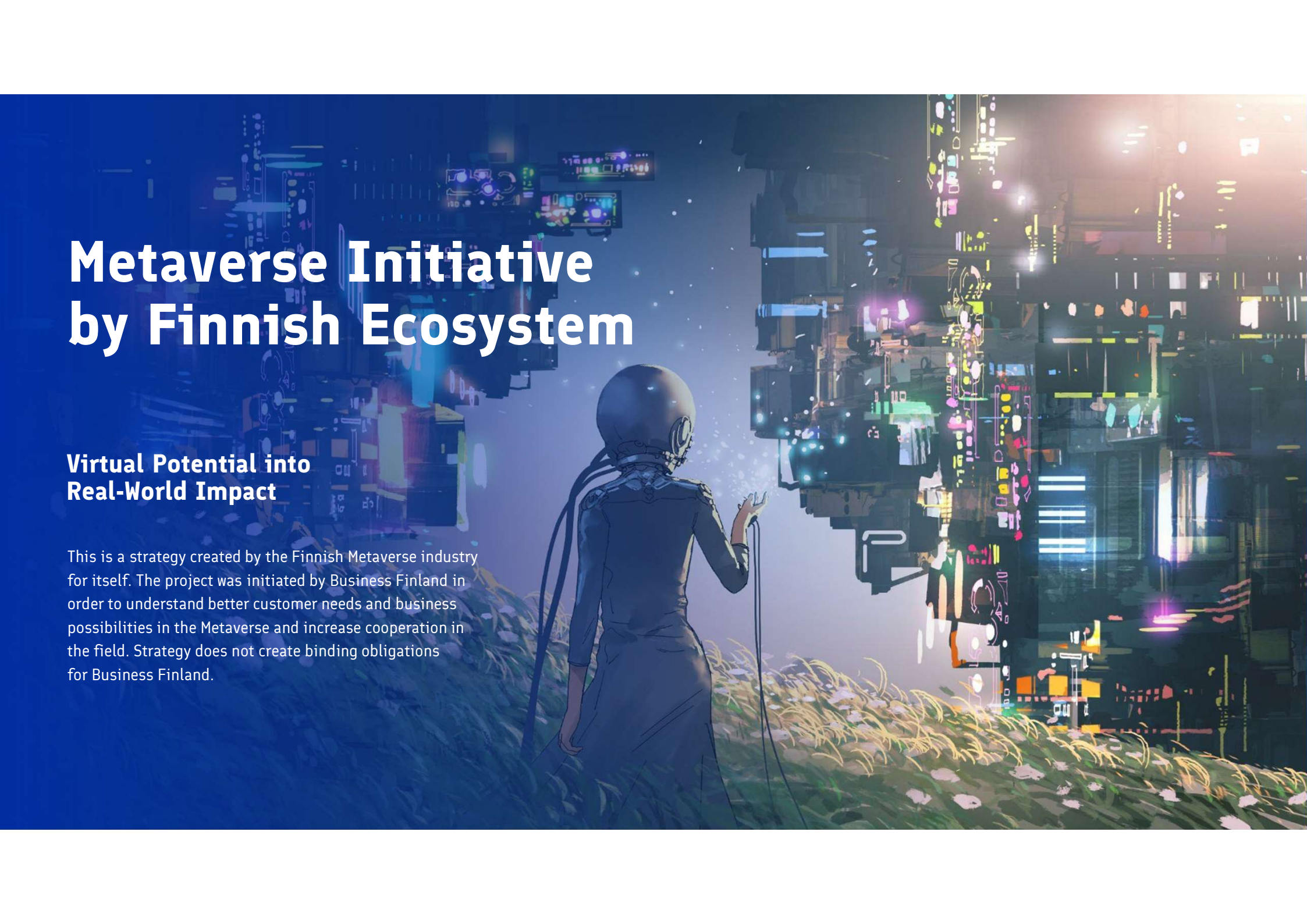


Metaverse Initiative by Finnish Ecosystem

Virtual Potential into Real-World Impact

This is a strategy created by the Finnish Metaverse industry for itself. The project was initiated by Business Finland in order to understand better customer needs and business possibilities in the Metaverse and increase cooperation in the field. Strategy does not create binding obligations for Business Finland.



The Structure of the Strategy

- 1 The Metaverse Strategy Process**
Story of open cooperation in Europe's living lab
- 2 Finnish Approach to the Metaverse**
Definition. Finnish Values and Strengths.
- 3 2035 Vision for Finland**
Inspiring role model.
- 4 The Way to the Future**
Collaborate and Lead.
- 5 Recommendations and Actions 2024**
The First Steps to take

The aim is set to **year 2035** and these four items are **updated annually** to keep up with the changing currents of the world.

CONTENTS



The Finnish Approach to metaverse strategy

Finland is the **first European nation** to make the Metaverse Strategy, and one of the first ones globally. In total the Finnish metaverse ecosystem is estimated to have in total **250+ companies**.

The Metaverse strategy process:

- The work started with a kick-off event in April 2023.
- Collaborative work: In total a community of **400+ members** from research organizations, government, large corporations and SMEs.
- This is a strategy created by the Finnish Metaverse industry for itself. The project was initiated by Business Finland in order to understand better customer needs and business possibilities in the Metaverse and increase cooperation in the field.

The aim is set to **year 2035** and the strategy will be **updated annually** to keep up with the changes of the world.

Planning to create a **formal structure for the industry** to support strategy implementation and continuity of Metaverse related work. This might consist of a combination of Finnish Metaverse association and an innovation cluster.

The strategy will be realized with the five **Metaverse In Action (MIA)** programs from the beginning of 2024.

<https://www.digitalfinland.org/>

Metaverse Strategy Forum founded during the strategy project. The forum is open for everyone to join upon request to the coordinators. Forum covers all stages of the Finnish ecosystem and also foreign organizations.

Metaverse Advisory Board of about 20 members covering all aspects of the Metaverse. The board proposes development initiatives and coordinates new initiatives.



Fig 1. Kick-off event of the Finnish Metaverse Strategy in Team Finland house Helsinki, April 2023

HARDWARE

OPERATING SYSTEM
/ DEVELOPMENT
TOOL KIT

APPLICATIONS

CONTENT

END USERS

V&T OPTOFIDELITY

brighterwave

Verkotan

VAGATE
SENSORS

INKRON

SPECIM
A Konica Minolta Company

PiBond

BENEQ

SEETRU
TECHNOLOGIES NANOCOMP

NOKIA dispelix

TRIOPTICS

Tampereen yliopisto
Tampereen ammattikorkeakoulu

TURKU AMK

OAMK

OULUN YLIOPISTO

A"
Aalto-yliopisto

VTT

LUT
University

KOHDATA

Doublepoint

FINWE

STREAMED REALITY

PROVERSE

MIXX REALITY

CO Jetecon

Spectacular AI

4HAPTICS

IMMERSAL

BASEMARK

QUARANTINE
STUDIOS

VAKI GAMES

thinglink..

REALITY CRISIS

VS

finger virtual space

GBuilder

3D TALO

ANAKY LABS

glue VR4
HEALTHCARE

KEHO
INTERACTIVE

cse

PRESENCE
YOUR XR PARTNER

FOV
VENTURES

HXRC

neogames
HUB OF THE FINNISH GAME INDUSTRY

augmenta ARILYN

glue

VALO MOTION

Upknowledge

AINAK

AMELIATE

Second
Theatre

POINTR
ENSURE BUSINESS CONTINUITY

pellivision

MeKiwi

VIRTUAL DAWN

KORPI
GAMES

VREAL

FLYFTA

XRTC

3D BEAR

VRTRAUMA

aino.ar

Institute
of Photonics

PREIN

AR-GO lab

Process Genius

YOUNITE-AI

flyQ

SOFTABILITY

RAYWORKS

SULAVA

VISUAL
COMPONENTS

YR
STUDIO

ELOMATIC
CONSULTING & ENGINEERING

SITOWISE

ZOAN

twinverse

STEREO

SCAPE

tieto
EVRY

Photonics Finland

OPEN
FR

KIRAHUB

FIVR
FINNISH VIRTUAL REALITY ASSOCIATION

Valmet

NOKIA

KONECRANES

KONE

PONSSE

BUSINESS
FINLAND

Definition of the Metaverse

The Metaverse is a collective virtual shared space that encompasses and transcends physical, digital, and augmented realities.

Metaverse is often considered a **combination of virtual and real worlds (digital twin)** and also **next iteration of Internet.**

Metaverse has two distinct qualities: **virtuality and immersiveness.**

Extended reality (XR) is an umbrella term referring to all the immersive technologies on the spectrum of real and virtual worlds: e.g. AR, MR, AV, VR, 360 video.

XR is expected to replace or complement smartphones by smart glasses by **2030.**





The Metaverse is usually defined as having at least the following characteristics:

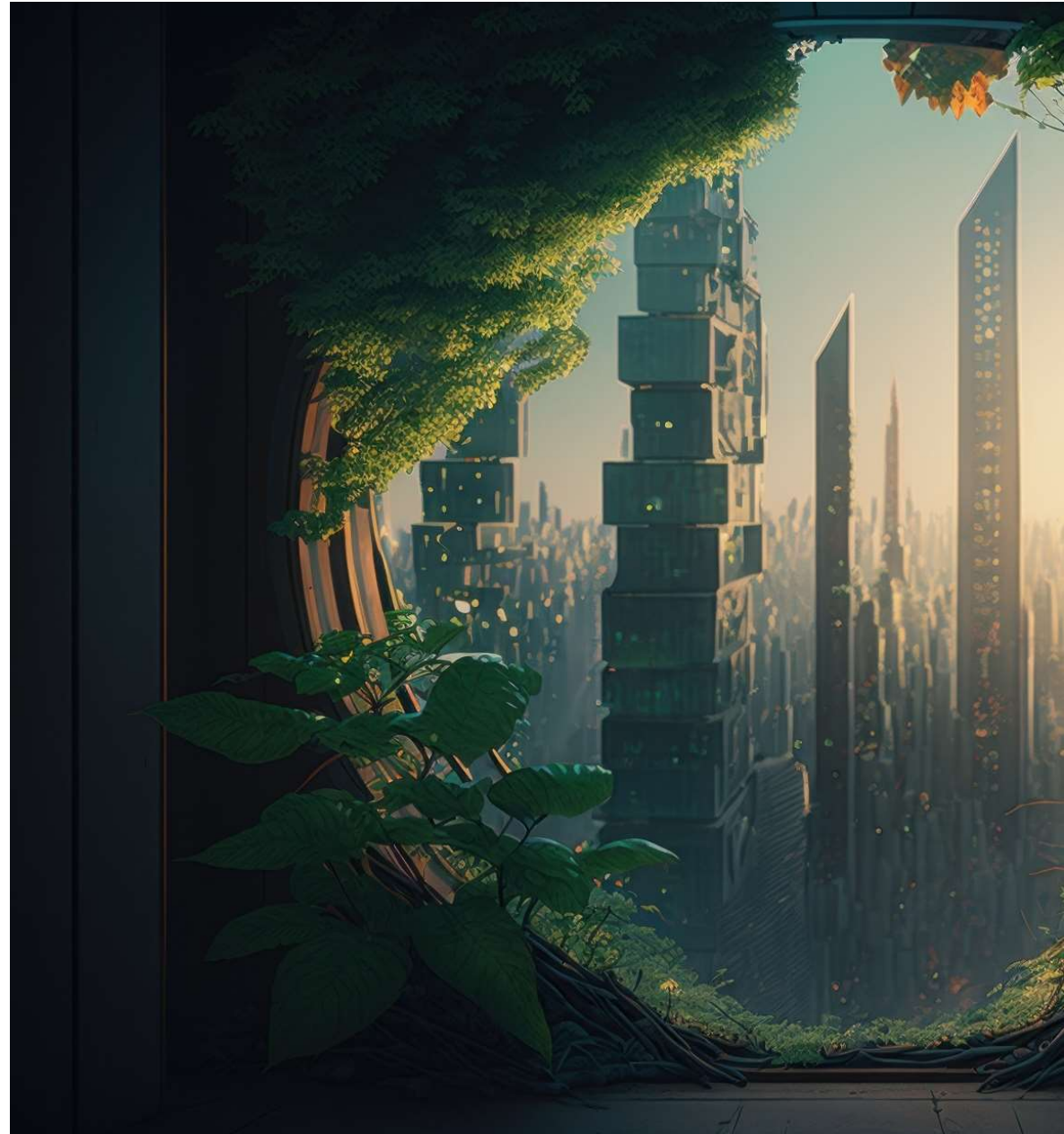
- **Persistence:** The Metaverse has the ability to remember a user and their environment from one session to the next.
- **Connection to the real world:** Parts of the metaverse are seamlessly connected to the real world using IoT or similar technologies.
- **Immersiveness:** The metaverse provides the users a feeling of presence. It mimics reality and is therefore by default in 3D.
- **Collaboration and social interaction:** Users can collaborate, socialize, communicate, and trade freely in the metaverse. The interaction is better than in F2F.
- **Interoperability:** Users can freely move from one virtual world to another and transfer their data and assets (e.g. avatars) from one platform to another and sell them at open markets.

Finnish values and strengths

Well-being and Freedom

Increasing well-being in an environmentally, socially and economically sustainable way and to continuously improve human rights throughout the world.

- Strength: **Sisu** is a Finnish concept that represents a form of inner strength and perseverance.
- Strength: **Equality of people/Cooperative Society**: Finland is a country where everyone is equal before the law and has equal opportunities to access public services.
- Strength: **Pioneer in bioeconomy**, which is the production and use of renewable biological resources for food, energy, materials, and services.





Openness and trust

Sharing and caring with the whole world, collaborating with other nations. Promoting open science and research, innovation and culture. Embracing learning and curiosity.

- Strength: **Impartial status in geopolitics:** Finland promotes peace, security, human rights, democracy, and multilateral cooperation.
- Strength: **High profile research and technological ability:** Finnish legacy of photonics research and history of consumer electronics design, provides excellent position in XR technologies.
- Strength: **Democracy and trust:** Finland is a top-ranked country in democracy, press freedom, human rights, and government effectiveness.



SUOMI
FINLAND

VISION for FINLAND 2035

Overall vision for Finland:

Finland as an inspiring role model
for the whole world

1. In 2035 Finland is globally the leading **architect and enabler for the Metaverse**.
2. Finnish leadership in the industry is globally recognized and Finland is considered a **benchmark society** that has fully adopted the Metaverse.
3. Finland has a **thriving solution cluster** and Finland attracts major Foreign Direct Investments in all parts of the Metaverse value chain.
4. The annual **Metaverse industry turnover will be more than 30B€**.
5. Metaverse has **open standards** and interfaces that provide sufficient independence and freedom, and protect the ecosystem from being **dominated** by a single company or country.

Vision based on economic growth and values:

Economic growth:

- Finland is a global leader and innovator in the Metaverse, with technological sovereignty, business excellence, and real-life test bed capabilities.
- Finland has developed and adopted Metaverse in various industry verticals, such as industrial metaverse, education, gaming, and defense.
- Finland has a diverse and dynamic metaverse ecosystem with a favorable environment for standardization, regulation, cybersecurity, and education.

Well-being:

- Finland improves well-being in an environmentally, socially and economically sustainable way.
- Finland supports democratic development and international cooperation.



Vision based on economic growth and values:

Freedom:

- Finland is a global leader in diversity and accessibility in the Metaverse.

Openness:

- Finland is a global open hub for innovation and creativity in the Metaverse, fostering a culture of experimentation, collaboration, and entrepreneurship.

Trust:

- Finland is a global advocate for digital rights and ethics in the Metaverse, ensuring that the users' privacy, security, and autonomy are respected and protected.



Medium to long term actions

All of the application specific programs share two common MIA programs:

1 Technology Enablers:

- This activity focuses on developing and standardizing the technical infrastructure and platforms that enable the Metaverse (HW, SW, optics, AI etc.).

5 Business Collaboration:

- This activity focuses on fostering and facilitating business cooperation across whole of the Metaverse value chain.
- One of the purposes is to secure technological autonomy.



Fig 2. Five Metaverse In Action (MIA) programs for operationalizing the strategy.

Medium to long term actions

In addition there are three horizontal MIA programs that are focusing on more specific challenges:

2 Metaverse Society:

- Familiarizing ordinary citizens with Metaverse. Educating general public on Metaverse.
- Making metaverse access available for everyone in hubs, public libraries or other public places.
- Publishing metaverse related content in ordinary media.
- Arranging highly visible metaverse events for the public.

3 Metaverse Health:

- AR/VR/Metaverse technologies can offer new ways to improve health outcomes, reduce costs and increase access for every-one in Finland.
- For example, VR can be used for pain management, mental health treatment, rehabilitation and training.

4 Industrial Metaverse:

- Metaverse Technologies can enable human-centric remote work and telework, teleoperation, digital twins and AI helpers, collaborative robotics and situational awareness.
- These can enhance productivity, efficiency, safety and sustainability in various sectors such as manufacturing, maintenance, construction, energy, transportation and agriculture.



SUOMI
FINLAND

ACTIONS AND RECOMMENDATIONS 2024

Technology enablers:

The development and innovation of the metaverse platform and its components.

- Collaborate globally to create a common open platform for the Metaverse.
- Direct public RDI funding for metaverse development, early stage trials and pilotings both on national and EU level.
- Encourage international collaboration and standardization on regulatory, research, and business aspects of the metaverse.
- Establish Metaverse metrics index for countries/ organizations to measure metaverse readiness.
- Focus on: infrastructure, hardware, platforms and enablers (e.g. security).

Business networks:

The creation and promotion of metaverse-related networks, businesses and entrepreneurship.

- Use Team Finland global network and Invest In Finland to promote metaverse business opportunities and attract large global companies to locate to Finland.
- Create metaverse-specific startup incubators and accelerators to nurture homegrown talent and attract international entrepreneurs.
- Set up Finnish Metaverse Ecosystem Association and an annual International Metaverse seminar.
- Create international and national consortiums and value networks around these programs.
- Industrial Metaverse: The industrial applications and implications of the metaverse.
- Utilize the opportunities of the green transition in the metaverse development
- Use metaverse to educate people about sustainability.
- Define and solve issues regarding Intellectual Property Rights in the Metaverse.
- Incorporate foresight and continuous research into industrial strategy work.

Metaverse Society:

The social and cultural aspects of the metaverse.

- Ensure the participation of different organisations and population groups in the metaverse development process.
- Make it easier for international experts and students to work in/from Finland and stay after their studies.
- Ensure access to metaverse for all citizens.
- Launch public awareness campaigns to educate citizens about the metaverse and its potential benefits
- Promote Finnish culture, heritage, and creativity in the metaverse by supporting artists, musicians, and content creators.
- Start new educational programs on metaverse and launch sandbox development on European level.
- Promote biodiversity conservation in the metaverse.
- Ensure good governance, predictability, and continuity in the metaverse development.
- Address how privacy and trust are ensured in the metaverse.

Metaverse Health:

**The health and well-being
of the citizens.**

- Address how potential addictive and other harmful effects are mitigated in the metaverse.
- Take use the new and tested treatments which use immersive technologies.
- Create and support new innovations on Metaverse based well-being and healthcare.

More actions and recommendations can be found in the [Strategy document](#).

CONCLUSION

WE ARE WITNESSING an incredible speed how technology is progressing faster than ever.

WHAT YOU CAN DO now to keep up? Contact us and have a discussion of how your organization can embrace the future and stay relevant in the Metaverse age.

May the sisu be with you.



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