

FINLAND

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The Metaverse Strategy for Finland

Virtual Potential into Real-World Impact



HXRRC



VTT



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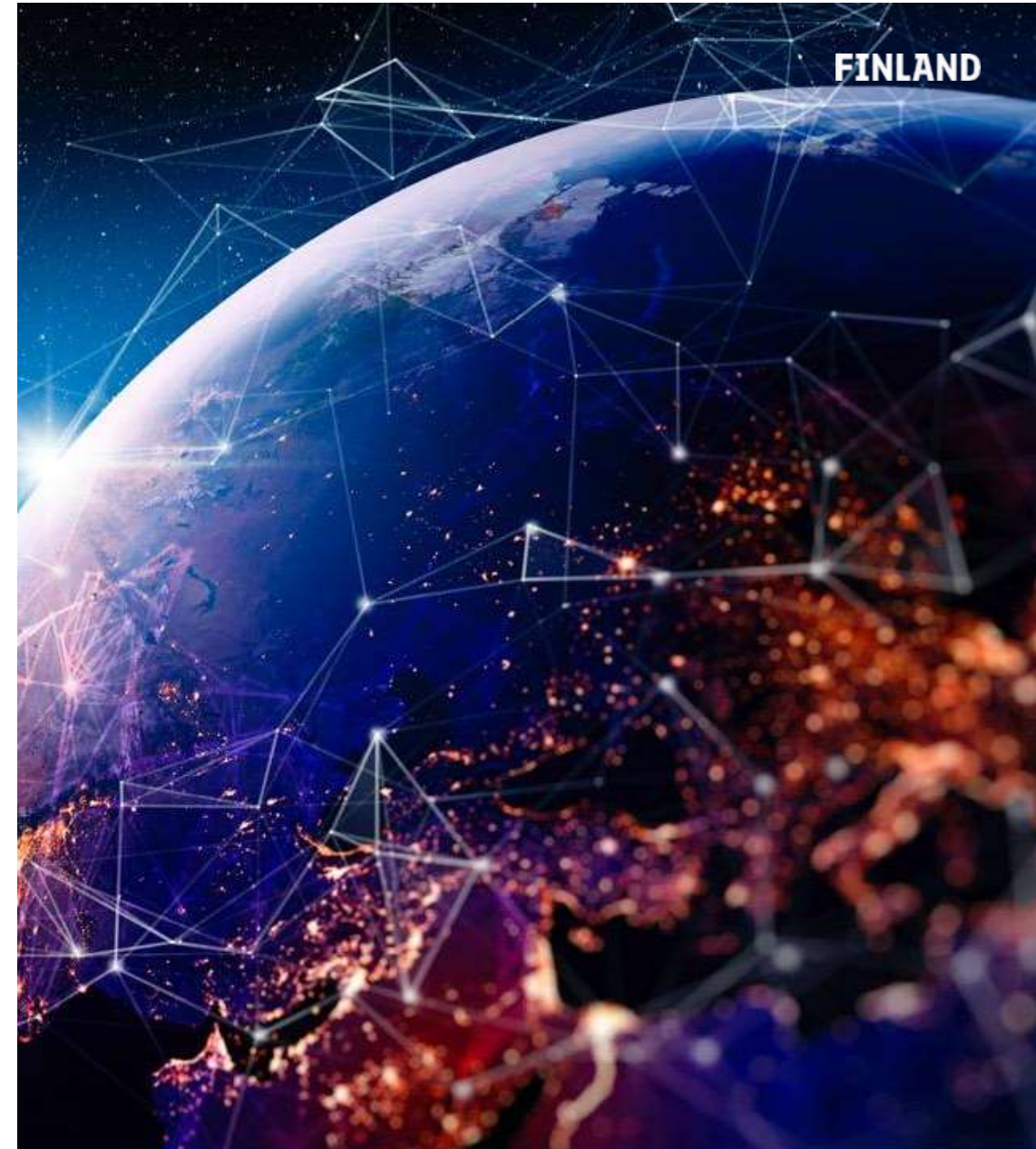
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The aim is set to **year 2035** and these four items are **updated annually** to keep up with the changing currents of the world.



DEFINITION OF THE METAVERSE

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

The metaverse brings more emotion, connection, empathy, and togetherness to our collective experience of life. It enables us to interact with each other and our environment in new and immersive ways. It also creates new opportunities for creativity, innovation, entertainment, education, and commerce.

The term metaverse was popularized by Meta's Mark Zuckerberg in 2021, but it was originally coined by Neal Stephenson in his 1992 novel Snow Crash. It has since been used to describe various visions of virtual worlds that are immersive and experiential.

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

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Well-being and Freedom

The goal is to increase well-being in an environmentally, socially and economically sustainable way and to continuously improve human rights throughout the world. Supporting democratic development and international cooperation in the world. Freedom is the foundation of the Finnish society and culture, and it is reflected in the legislation, education and welfare system. Respect for diversity and inclusion of all people regardless of their background or identity.

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. Finland ranks among the top countries in gender parity, women's empowerment, and female representation. Finland also respects and promotes the rights and inclusion of minorities.

Strength: **Pioneer in bioeconomy,** which is the production and use of renewable biological resources for food, energy, materials, and services. Finland is home to some of the world's leading companies in clean technology, such as Neste, which produces renewable diesel and jet fuel from waste and residues.

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. responsible and reliable cooperation between people, businesses and organizations, and constant trust-building. Transparency and accountability in public administration and decision-making.

Strength: **Impartial status in geopolitics:** Finland pursues an active foreign policy that promotes peace, security, human rights, democracy, and multilateral cooperation. Finland's geopolitical position between superpowers of the world allows it to balance its interests between different actors and regions and to create mutual trust in other countries.

Strength: **High profile research and technological ability:** Finland has a strong position in the global XR market, with several areas of expertise and innovation. Leading companies in XR, such as Varjo, Dispelix, and Optofidelity.

Strength: **Democracy and trust:** Finland is a top-ranked country in democracy, press freedom, human rights, and government effectiveness. Finland also has a high level of trust in public institutions, media, politicians, and fellow citizens, which boosts social cohesion, economic performance, and well-being.

VISION FOR FINLAND 2035

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Finland as an inspiring role model for the whole world

In 2035 Finnish leadership in the industry is globally recognized and Finland is considered a benchmark society that has fully adopted Metaverse. Finland is globally the leading *architect* and *enabler* for Metaverse, affecting all aspects of human existence.

Goal 1: Enable profitable business for companies

Goal 2: Important Actor in global value chains

- **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 the key enabling technologies for immersive and virtual experiences in various industry verticals, such as industrial metaverse, education, gaming, and defense. Finland also has a diverse and dynamic metaverse ecosystem that connects different actors, sectors, and domains, and provides a favorable environment for standardization, regulation, cybersecurity, and education.
- **Openness:** Finland is a global open hub for innovation and creativity in the metaverse, fostering a culture of experimentation, collaboration, and entrepreneurship. Finland supports talent, startups, and investors in the metaverse domain, offering a favorable regulatory and funding environment.
- **Nature:** Finland is a global leader in achieving the UN's Sustainable Development Goals, with a systemic approach to transforming its economy, society, and environment. The metaverse supports Finland's sustainability efforts by reducing emissions, enhancing circularity, improving wellbeing, and fostering social cohesion.
- **Well-being:** the goal is to increase well-being in an environmentally, socially and economically sustainable way and to continuously improve human rights throughout the world. Supporting democratic development and international cooperation in the world.
- **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. Finland also promotes the values of democracy, transparency, and accountability in the governance and development of the metaverse. Finland also fosters a culture of digital literacy and responsibility among its citizens, empowering them to make informed and ethical choices in the metaverse.
- **Freedom:** Finland is a global leader in diversity and accessibility in the metaverse, ensuring that the metaverse is inclusive and accessible for all people regardless of their background, location, or abilities. Finland also celebrates and showcases its cultural diversity and heritage in the metaverse, creating a rich and vibrant virtual environment. Finland also enables its citizens to access quality services, entertainment, and education in the metaverse, enhancing their wellbeing and opportunities.

The Way to the Future

This is how we will achieve the Metaverse Vision:

- **Be guided by vision and values.** We want to create Metaverse, which is inclusive, accessible, ethical, and sustainable for everyone.
- **Foster structured cooperation.** We can collaborate with companies across the value network both nationally and internationally to deliver immersive and virtual experiences to the end users.
- **Leverage our strengths.** We have a unique position between the world's superpowers, which makes us a trustworthy and impartial partner. We also have expertise in gaming, education, and design, which enables us to create engaging and innovative solutions.
- **Enhance education for the metaverse.** We can provide high-quality education and training programs that equip our citizens with the skills and knowledge they need for the Metaverse. We can also use the Metaverse as a platform for learning and teaching, offering immersive and interactive experiences for students and teachers. We can also introduce the Metaverse and its hardware to students from an early age, encouraging them to explore, create, and collaborate in the virtual world.
- **Boost economic growth.** We can support the transition to a low-carbon and circular economy, enhance the quality and efficiency of public services, and increase productivity and competitiveness through research and development.
- **Improve marketing and sales.** We have high-end technology, but we need to communicate better what we have done and why it is good. We can use storytelling, branding, and social media to showcase our achievements and attract more customers.
- **Advance metaverse research.** We can invest in innovative research that develops new solutions and opportunities for the metaverse. We can also join forces with other countries and organizations and contribute to the global knowledge base of the Metaverse.

Medium to long term actions

This is how we will achieve the Metaverse Vision, by implementing the following Metaverse in Action programs:

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. Finland has the potential to become a leader in this field, with its strong education system, creative industries and gaming sector. This program aims to create understanding of the opportunities, foundations for the new skills and generations to use the Metaverse. It includes the whole educational system, public services, media, arts, entertainment, gaming and culture.

Metaverse Health: AR/VR/Metaverse technologies can offer new ways to improve health outcomes, reduce costs and increase access for everyone in Finland. For example, VR can be used for pain management, mental health treatment, rehabilitation and training. AR can be used for remote diagnosis, surgery guidance and patient education. This program aims to explore and implement new ways to use Metaverse Technologies in preventive health care, and in health care for everyone in Finland.

! see (and edit) slides 14,15 and 16 about the programs

Metaverse Industry: The Fourth Industrial Revolution is transforming the way we work and produce value. 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. This program aims to support and accelerate the adoption of Metaverse Technologies in Finnish industries.

The Metaverse in Action programs are supported by two horizontal activities that cut across all domains:

Technology Enablers: This activity focuses on developing and standardizing the technical infrastructure and platforms that enable the Metaverse. It includes aspects such as interoperability, scalability, security, privacy and accessibility.

Business Collaboration: This activity focuses on fostering and facilitating the business opportunities and networks that emerge from the Metaverse. It includes aspects such as innovation ecosystems, value chains, business models and regulations.

ACTIONS AND RECOMMENDATIONS 2023-2024

ECONOMIC GROWTH:

Lobby for the benefit of Finnish companies in the metaverse development

Direct public RDI funding to metaverse topics and support early implementations

Use Team Finland global network and Invest In Finland to promote metaverse business opportunities and attract global companies to locate in Finland

OPENNESS:

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

Start new educational programs on metaverse and launch sandbox development on European level

Encourage international collaboration and standardization on regulatory, research, and business aspects of the metaverse

Set up Finnish Metaverse Ecosystem Association and an annual International Metaverse seminar

NATURE:

Utilize the opportunities of the green transition in the metaverse development

Protect biodiversity conservation in the metaverse

Use metaverse to educate people about sustainability

WELL-BEING:

Promote Finnish culture, heritage, and creativity in the metaverse by supporting artists, musicians, and content creators

Launch public awareness campaigns to educate citizens about the metaverse and its potential benefits

TRUST:

Ensure good governance, predictability, and continuity in the metaverse development

Incorporate foresight and continuous research into national strategy work

Maintain a snapshot of the development potential of the metaverse and previous contributions

Address how privacy and trust are ensured in the metaverse

Establish Metaverse metrics index for countries/organizations to measure metaverse

FREEDOM:

Address how potential addictive and other harmful effects are mitigated in the metaverse

Create metaverse-specific startup incubators and accelerators to nurture homegrown talent and attract international entrepreneurs

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.

Strategy Coordinator
Jani Vallirinne
jani.vallirinne@oulu.fi

Account Manager, Digitalization
Jani Jokitalo
jani.jokitalo@bf.fi
Tel: +358 (0) 50 354 4344

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