

EU INITIATIVE ON WEB 4.0 AND VIRTUAL WORLDS

EU Initiative on Web 4.0 and virtual worlds

*CONNECT UNIVERSITY–
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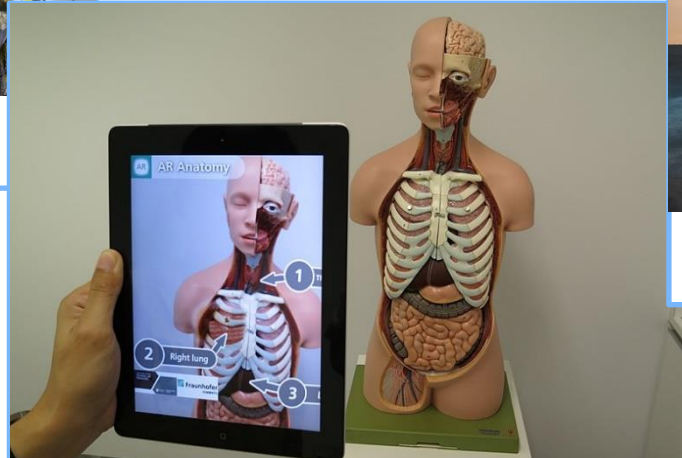


Web 4.0 and virtual worlds

Game changers in many sectors



Manufacturing



Health



Education/Training

What are we talking about

Virtual worlds

Persistent, 3D, real-time, immersive environments, blurring the line between real and virtual, for socialising, working, learning, making transactions, playing and creating.

WEB 4.0

A wider, long term technological transition where physical and digital worlds will **seamlessly blend**, and **smart devices will communicate to each other** to perform complex tasks.

**WEB
2.0**
centralised



Mainly 2D worlds, basic immersion, enabled by traditional input/output interfaces. Marketing/branding.

**WEB
3.0**
decentralised



3D web, generalised use of Digital Twins, enhanced user interfaces, mainstream XR devices.

**WEB
4.0**
distributed



Seamless blending of real and virtual worlds, enabled by natural user interfaces, real-time sensor data, generalised AI, ubiquitous computing and distributed control.

State of play and perspectives

Technologies

Mainstream virtual worlds will require

1000x increase in **computational efficiency**

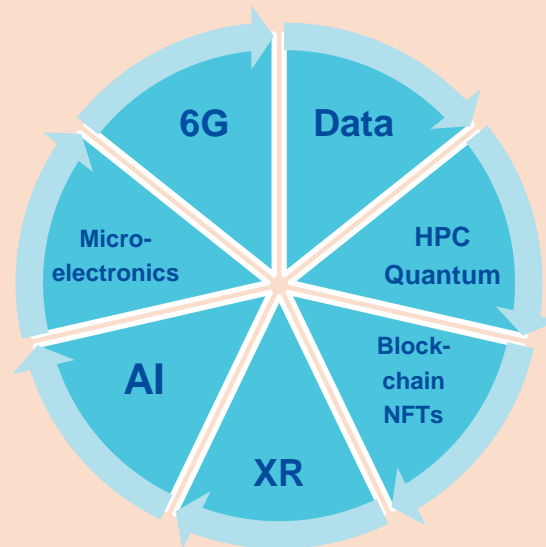
Intel

&

40x more data than streaming HD video

Arthur D. Little

Seamless **integration** of **enabling technologies** will be key



Markets and jobs

Global market size

from **€27bn** in 2022 to **€800bn** by 2030

Bloomberg

Up to **860000** new **XR jobs**

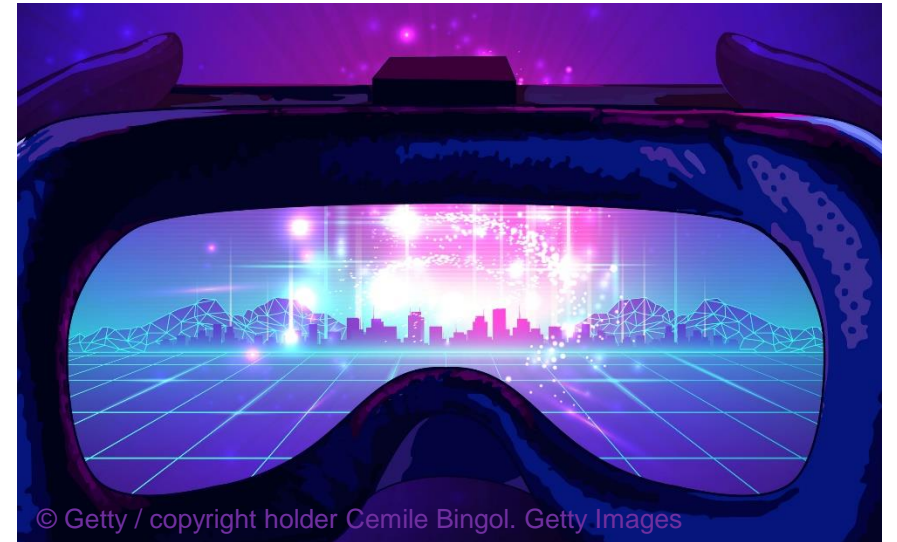
In Europe by 2025

Ecorys

The vision

Web 4.0 and virtual worlds:

- that reflect EU values, principles and fundamental rights
- where people can be safe, confident and empowered and where people's rights as users, consumers, workers or creators are respected
- where European businesses can develop world-leading applications, scale up and grow
- that are open and interoperable giving freedom of choice for users
- where sustainability is at the core of technological developments.



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Drivers: EU's Single Market, rich and diverse culture, creative content, strong industrial base, excellence in research, innovation and education, and robust legislative framework

Strategy



European Citizens' Virtual Worlds Panel

- 142 citizens meeting over 3 weekends
- Deliberating on visions, guiding principles and actions



INFRASTRUCTURE

addressed by the Commission's broader policies on connectivity (Connectivity Package 23 Feb 2023), computing, cloud and edge

1: People and skills



2: Business and industrial ecosystem



3: Government



4: Governance



European Citizens' Panel on Virtual Worlds

Final recommendations

Values and principles for desirable and fair European Virtual Worlds

1. Freedom of choice
2. Sustainability
3. Human centered
4. Health
5. Education & literacy
6. Safety & security
7. Transparency
8. Inclusion

23 recommendations

Topics

- Work and job markets
- Supporting innovation & development
- Public / private: rating and registration
- Data use and protection
- Central agency + police
- Learning and education
- Environmental and climate sustainability
- Health impact + research agenda
- Information sharing and awareness
- Digital identity
- Connectivity and access
- International cooperation and standards

People and Skills

Building a talent pool

- Skills development in virtual worlds technologies (DEP) and digital content (Creative Europe programme)
- Attract skilled experts

Tools for citizens

- Virtual worlds toolbox for general public
- Promote guiding principles put forward by the Citizens' Panel
- Research on impact on people's health and well-being (HE)

Empowered and protected children in virtual worlds

- Educational resources for young people under the Better Internet for Kids strategy

Business: Supporting the European Web 4.0 industrial ecosystem

Boosting the EU's technological capabilities

- New European Partnership under Horizon Europe to develop industrial and technological roadmap

Accelerating the uptake of new business models and solutions

- Supporting EU Cultural and Creative Industries (Creative Europe);
- Reinforce the Virtual and Augmented Reality (VR/AR) Industrial Coalition
- European Digital Innovation Hubs to promote uptake of new solutions
- Matchmaking between virtual world developers and industrial users



A supportive business environment

- Standards for open and interoperable virtual worlds
- New digital cooperation models
- Toolbox to fight counterfeiting
- Virtual worlds regulatory sandboxes in Member States

Government



Governance

Public flagships

- Flagship for smart and sustainable cities and communities, Civerse (DEP)
- Flagship to digitally replicate the human body, European Virtual Human Twin (Horizon Europe)

Multi-country collaboration

- European Digital Infrastructure Consortia (EDICs) in areas relevant to virtual worlds

Governance structures for Web 4.0 and virtual worlds

- Web 4.0 expert group to shape a common approach with Member States
- Engage with existing multi-stakeholder internet governance institutions
- Technical multi-stakeholder forum beyond the remit of existing internet governance bodies

Monitoring

- Structured approach to monitoring across all industrial ecosystems

Information



- **An EU initiative on Web 4.0 and virtual worlds**
- **Staff working document: information, insights and market trends on web 4.0 and virtual worlds**
- **Citizens' report on virtual worlds**
- **Q&A: Web 4.0 and virtual worlds**
- **Factsheet: Web 4.0 and virtual worlds**
- **Factsheet: How to develop desirable and fair virtual worlds? The citizens' perspective**

https://ec.europa.eu/commission/presscorner/detail/en/ip_23_3718

Agenda

- Web 4.0 and virtual worlds - Anne Bajart, DG CONNECT
- ***The importance of the citizens' panel*** - Joachim Ott, Head of Unit, the Citizens' Dialogues unit, DG COMM
- ***Virtual worlds through the lens of public values*** - Mariette van Huijstee, Coordinator at Rathenau Institute
- ***B(I)ending Real and Virtual Worlds*** - Prof. Dr. Frank Steinicke, Hamburg University
- ***Leveraging Virtual Twins for Green Industry*** - Sébastien Massart, Chief Corporate Strategist at Dassault Systèmes
- ***The VR2CARE Experience and some Reflections on the web 4.0 in Healthcare*** - Lucia Pannese, CEO of Imaginary
- ***Questions and answers***

Thank you



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