



JRC SCIENCE FOR POLICY REPORT

Next Generation Virtual Worlds:

Societal, Technological, Economic and Policy Challenges for the EU

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Joint
Research
Centre



Next Generation Virtual Worlds

“Transition towards a Web 4.0 paradigm where physical and digital worlds will seamlessly blend.”

“There is an enormous social expectation and great uncertainty.”

- Analysing and balancing **opportunities and challenges** that next generation virtual worlds are likely to offer.
- **Multidisciplinary and multi-sectoral perspective**, covering technological, social, industrial, policy and economic dimensions.
- European vision of putting **human rights and citizens at the centre** of the digital transformation.



Tech watch and foresight of real-world use cases



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OPPORTUNITIES



Education

- New learning and training experiences
- Playful development and socialisation
- Accessibility for all



Public sector

- Advanced delivery channel for digital public services
- Citiverses



Healthcare

- Better diagnosis
- Enhanced training of medical skills
- New therapies
- Emotional well-being



Manufacturing

- Generation of new jobs
- Improved operational efficiency
- Digital twins

CHALLENGES

Societal

- Ethics and human rights
- Influence on human health, psychology and social interaction
- Accessibility + inclusion
- Impact on SDGs
- Citizen's readiness for adoption

Economic

- Trust issues. Prevent fraud, hacking and theft of virtual assets.
- Taxation
- Competition
- New business models

Technical

- New technologies
- New types of data and contents
- Privacy and security
- Computational infrastructure
- Standardisation and interoperability

Policy

- Governance models
- Implications for existing policies and laws
- Law enforcement
- Jurisdiction and governing laws