XR5.0

LIVE WEBINAR

5th BeyondXR Projects Cluster Webinar

Breaking Barriers: How Open XR Standards Unlock Interoperability and Compliance

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PRESENTERS:

XR2INDUSTRY

SPIRIT

XR 4EUROPE

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Towards a Cohesive XR Ecosystem: The Strategic Role of Standards in Europe

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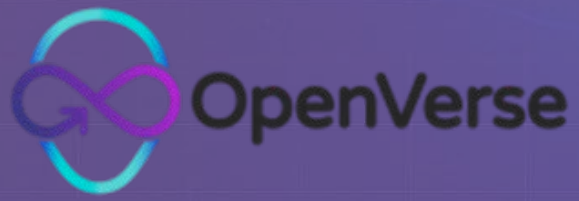
XR4Europe



The Strategic Value of Standards for Europe

Europe's XR ecosystem is fragmented across many countries, languages, and markets. Standards are essential to:

- Enable **cross-border collaboration**: reduce friction for European companies to export, partner, or interoperate
- Support **community and ecosystem growth**: make it easier to build shared tools and resources
- Foster **competitive ecosystems**: avoid lock-in to dominant non-European platforms by promoting open, interoperable solutions
- Improve **cross-device compatibility**: mitigate negative impacts of proprietary hardware
- Strengthen **sovereignty and resilience**: maintain European control over critical technologies and infrastructure

Standards Development: Top-Down vs Bottom-Up

Top-Down: Initiated large corporations or regulatory bodies

Characteristics:
- Mandated or guided by single org/govt
- Can reflect dominant players' interests

Examples: GDPR, PDF

Advantages:
- Consistent, enforceable
- Supports public interest goals

Drawbacks:
- Risk of inflexibility
- Can privilege incumbents

Ideally, these two methods are combined

Bottom-Up: Emerges from industry collaboration

Characteristics:
- Consensus-based
- Open to diverse stakeholders

Examples: HTML, OpenXR

Advantages:
- Represents diverse needs
- Promotes interoperability

Drawbacks:
- Slower consensus
- Less enforceable without formal adoption

Supporting or Resisting Open Standards

Why countries may support open standards:

- Strategic autonomy: reduce dependence on foreign tech giants
- Foster local industry that can compete internationally
- Boost export competitiveness
- Ensure data sovereignty and privacy
- Shape global standards to reflect local values

Why countries may resist open standards:

- Lock-in: maintain dependence on national champion's proprietary technologies
- Competition for influence over global standards

Why companies may support open standards:

- Expand markets: easier customer adoption
- Grow ecosystems: more complementary products
- Build trust: signal long-term compatibility
- Reduce costs: reuse standard components
- Align with regulation (healthcare, defence)

Why companies may resist open standards:

- Lock-in: create customer dependency
- Control: dictate terms, collect fees, own user data
- Brand value from dominant proprietary standards
- Faster innovation without consensus-building

OPENVERSE, an EU-funded bottom-up approach to supporting development of standards

- Identifies existing XR and Metaverse standards and gaps
- Maps technical, ethical, legal, and IPR requirements
- Supports scenario-based foresight for European needs
- Provides input to industry standardisation bodies
- Builds cross-sector collaboration among industry, research, and policy actors
- Strengthens community building to align supply and demand perspectives

Technical Standards: How Things Work Together

Define formats, protocols, and APIs.

Enable interoperability and compatibility.

Ensure predictable behaviour across systems.

Examples:

- OpenXR (runtime API)
- glTF (3D asset format)
- WebXR (browser integration)

Ethical Standards: How Things Should Work

Define principles for responsible development and use.

Guide design choices that impact users and society.

Help ensure systems benefit people and minimize harm.

Examples:
IEEE 7000 series for ethical system design
EU guidelines on trustworthy AI
XR4HUMAN Code of Conduct for ethical XR

Ethical standards appear more important with technologies like virtual worlds, even more so with AI integration

XR4HUMAN, an EU-funded project to build public trust in a competitive XR ecosystem in Europe

- Identifies emerging ethical, regulatory, and governance issues in XR
- Develops and promotes an Interoperability Guidance Document and a European Code of Conduct for responsible, inclusive, and human-centred XR technologies.
- Builds a lasting stakeholder Forum to raise public awareness, and support informed decision-making
- Provides developers and regulators with tools to demonstrate ethical and secure XR design.
- Showcases best practices in immersive design, development, and deployment

Unlocking the Strategic Value of Standards in Europe's XR/Virtual Worlds Ecosystem

- Incubate cross-sector and multi-stakeholder collaborations through EU-funded projects, like:

OpenVerse

Fostering cross-sector collaboration to identify gaps, inform industry standards, and align technological, ethical, and legal requirements

XR4HUMAN

Developing a European Code of Conduct and guidance to ensure ethical, human-centred XR design and strengthen stakeholder engagement

Projects are essential initiatives to:

- Reduce fragmentation, lower costs, and enable cross-border business
- Support a competitive, diverse European XR market by preventing vendor lock-in
- Strengthen Europe's digital sovereignty and resilience over emerging technologies
- Embed European values such as privacy, accessibility, and inclusivity in virtual world design
- Create competitive advantages for European XR and virtual worlds globally as well as in the Single Market

Research of XR/Virtual Worlds Standards

XR & Metaverse Standards Register:

- Tool for awareness and knowledge transfer
- Maintained by the Virtual Dimension Center (VDC)
- Lists 1500+ standards, 380 working groups, 140 SDOs
- https://xr-metaverse-standards-register.vdc-fellbach.de/

ViWISSO Project:

- Collaboration between VDC and Metaverse Standards Forum
- Focus on mapping XR/virtual worlds standards
- Aims to reduce fragmentation, promote interoperability
- Funded by European Union and European Free Trade Association
- https://sites.google.com/view/viwissoproject/home?authuser=0