

Multimedia: from entertainment to industry

Intelligent, Immersive, Everywhere

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Nokia's Multimedia Journey

Over 30 years of multimedia research and product development,
with 6 Technology Emmy® Awards



Nokia Technologies

- Audio Coding Research
- Video Coding Research
- Immersive Multimedia Research
- AI-based Multimedia Research
- Standardization
- Licensing



Nokia Corporate Development Organization (CDO)

- Nokia RXRM
- Nokia 5G 360 Camera



Nokia Network Infrastructure (NI)

- Nokia CDN for Live



Cloud and Network Services (CNS)

- 3GPP IP Multimedia Subsystem (IMS)
- Nokia Team Comms

Multimedia Market

Entertainment Scales, Industry Accelerates

Entertainment & Media Market

- **Size in 2024:** \$2.736 trillion
- **Forecast for 2033:** \$4.94 trillion
- **CAGR:** 6.79%
- **Includes:** Film, TV, music, gaming, social media, advertising, streaming, and live content
- **Source:** [Business Research Insights](#)

Immersive Multimedia Market

- **Size in 2024:** \$40.88 billion
- **Forecast for 2030:** \$169.88 billion
- **CAGR:** 27.9%
- **Includes:** AR/VR/XR for consumers, training, simulation, remote ops, and industrial design, healthcare
- **Source:** [Grand View Research](#)

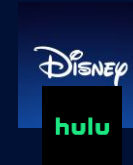
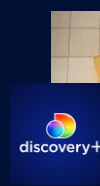
Industrial Multimedia Market

- **Size in 2024:** \$54.45 billion
- **Forecast for 2032:** \$117.88 billion
- **CAGR:** 10.25%
- **Includes:** Audio/video for smart factories, automotive, aerospace, medical, and industrial automation
- **Source:** [SNS Insider](#)

Social + Streaming + GenAI

2.7 T USD industry on the move...

- **Social media platforms** dominate attention and ad spend.
- **GenAI content** and AI-driven personalization reshapes user engagement, reaching up to **30-40% of whole content**
- Subscription video on demand (**SVOD**) fragmentation challenges profitability. **Mergers ahead...**
 - Warner Bros. Discovery in search for mergers with Paramount, Comcast, Netflix, Amazon, Apple....
- **Geopolitics** is re-shaping the platforms' ownerships
- **Personalized, multi-view, immersive live content** emerging



New Codecs, AI and new dimensions....

From 2D to immersive 3D...

- **H.265(HEVC)** seeing strong market penetration, **H.266 (VVC)** emerging
- Alliance for Open Media (AOM) released **AV2 codec**
- ISO and ITU (JVET) **calls for evidence for H.267**
 - **Nokia, together with Ericsson and Fraunhofer HHI** recently showed ~30% better compression than VVC with reasonable complexity
- **End-to-end AI codecs** emerging, promising **~80%** bitrate savings
- **Spatial audio** is beginning to be widely supported on devices
- **Volumetric codecs – photorealistic** dynamic 3D content
 - MPEG V3C, Dynamic Mesh Coding (MPEG V-DMC)
 - 4D Gaussian Splatting technology (under standardization)

Espoo, Finland, October 27, 2025

Nokia, Ericsson and Fraunhofer HHI join forces to drive 6G-era video coding standardization

Press Release

- Partners' proof-of-concept for next-generation video coding technology offers considerably higher compression than current standards.
- Proof-of-concept submission positively evaluated by the ITU-T Video Coding Experts Group and the ISO/IEC Moving Picture Experts Group (MPEG).
- Next video codec standardization will specifically address the needs of immersive media and mobile video experiences in the 6G era.

ISO/IEC/SC29 (MPEG) calls for evidence for H.267



4D Gaussian Splatting videos (© Gracia AI)

NOKIA

Industrial Multimedia

Factories, Fields & Facilities Go Multimedia

- **Extended Reality** is used in design, training, and predictive maintenance.
 - Siemens, Hyundai, and Bosch use XR for prototyping and predictive maintenance.
 - XR training boosts retention by 275%; AR improves first-time fix rates by 90%; immersion reduces maintenance costs by 30%
- **Digital twins** visualize entire operations with real-time multimedia and sensory input for **situational awareness**
- **AI-enhanced media compression** and edge streaming for real-time operations and decision making
 - Neural Network Compression (NNC)
 - Video Coding for Machines (VCM)



Digital Twin of Valmet premises in Tampere
3D Gaussian splatting technology
AI-based Situational Awareness (AISA) project

Looking ahead....

research, standardization and collaboration

- **New multimedia codecs**

- compression efficiency vs encoder/decoder complexity
- end-to-end AI codecs, FCM

- **New wearable devices**

- AR glasses and new multimedia consumption patterns

- **AI's impact on multimedia**

- GenAI, media authenticity

- **Bandwidth** requirements for 4D volumetric content

- currently around **200 Mbps** (50x Full HD content!)

- New (real-time) **media transport protocols** to shape content distribution

- Media over QUIC

- Industrial multimedia

- new use cases enabled by **XR and metaverse**



Nokia LEAD Veturi program

Co-innovation matters!



- **Mixer:** Multimodal interaction and autonomous systems for vehicles and heavy machinery; ecosystem collaboration across industry and academia.
- **Medallion:** Medical AI and immersion; explainable AI, XR collaboration, and remote medical workflows.
- **Augmented Wearable Computing (AWE):** Human augmentation via non-invasive, multimodal wearable technologies for fieldwork, mining, and defense.
- **Digital Demining:** Airborne mine detection using multi-sensor platforms; consortium includes Patria, Nokia, SAAB, VTT.



Thank You!
Q&A