

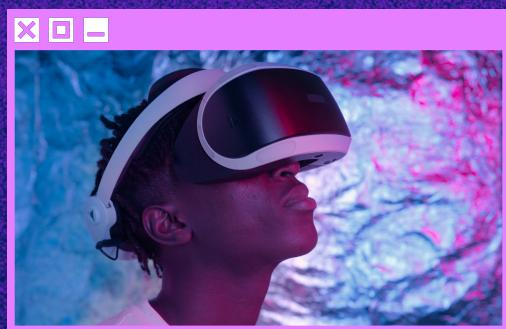
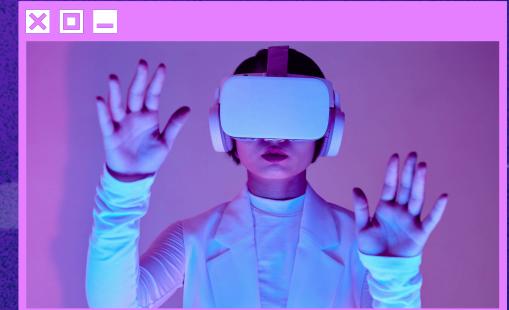


VR & AR ASSET MANAGEMENT CHALLENGES, OPPORTUNITIES & BEST PRACTICES

Importance & Impact



- Immersion media is growing rapidly in training, retail, and marketing, and product visualization. However, VR/AR assets are massive, complicated, and challenging to handle in conventional DAM systems (Walker, 2025).
- The main centre for organizing, searching, and reusing models, textures, animations, and AR formats is a special 3D-enabled DAM (Kuwano, 2025).



Key Challenges

- **Large File Sizes & Various Formats:** The majority of DAMs find it difficult to evaluate or store 3D assets effectively since they employ hefty formats like .fbx, .glb, and .usdz together with textures and animations.
- **Device & Performance Limits:** In mobile AR/VR, poorly optimized assets cause latency or failure.
- **Version Disagreements:** Version management is essential for VR/AR scenarios due to the numerous dependant files (geometry, textures, materials).
- **Gaps in Search & Metadata:** VR/AR require parameters like poly count, LOD level, and platform target. Traditional metadata is inadequate.
- **Complexity of Platform Delivery:** Assets must be deployed across online AR, VR headsets, and mobile AR, each of which has unique technological needs.

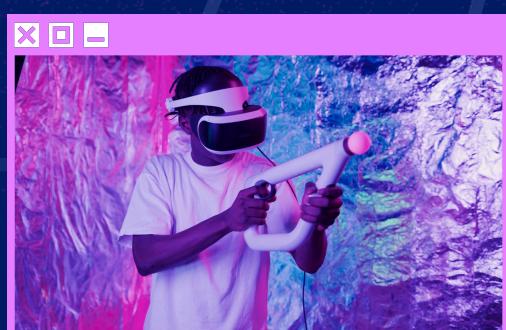
(Walker, 2025) (Kuwano, 2025) (Ashara, 2025) (Billinghurst et al., 2015)

Opportunities



- A unified library for VR/AR, 2D, and 3D;
- Reusable XR models provide for a quicker time-to-market;
- Immersion experiences that are consistent across platforms;
- Enhanced cooperation between the development, product, and creative teams;
- System scalability for expanding 3D processes

(Kuwano, 2025).



Best Practices

- **Plan & Preserve:** Make use of a 3D-enabled DAM with previews for .glb, .usdz, and .fbx. Make categories for AR sceneries, models, textures, and LOD variations.
- **Metadata:** Utilize the format, poly count, LOD, platform target, use rights, and version parameters that are unique to XR.
- **Maximize Assets:** Create LODs for VR, mobile, and the web. Reduce the number of polygons and reduce the graphics.
- **Control of Versions:** Keep track of relationships between textures, materials, and models. Keep each platform's master model and derivatives up to date.
- **Distribution Workflows:** Integrate AR delivery technologies with CMS/e-commerce and DAM. For large 3D assets, use cloud/CDN streaming.
- **Archiving:** Keep archive master formats in storage. As technology advances, update asset formats.

(Kuwano, 2025) (Billinghurst et al., 2015) (Ashara, 2025)

Citations



1. Walker, P. (2025, July 8). *3D & AR/VR Digital Asset Management: Best practices*. Pimberly. <https://pimberly.com/blog/3d-ar-vr-digital-asset-management-best-practices/>
2. Kuwano, S. (2025, October 27). *The Rise of the 3D Asset Repository: Navigating the New Dimension of Digital Asset Management*. <https://blog.echo3d.com/blog/navigating-the-future-of-3d-digital-asset-management>
3. Ashara, P. (2025, February 28). *What are the challenges of 3D modeling for AR and VR?* Blog. Whizzy Studios. <https://www.whizzystudios.com/post/what-are-the-challenges-of-3d-modeling-for-ar-and-vr>
4. Billinghurst, M., Clark, A., & Lee, G. A. (2015, January). *(PDF) a survey of Augmented Reality*. ResearchGate. https://www.researchgate.net/publication/277637661_A_Survey_of_Augmented_Reality