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Game Industry Convergence

Megatrends research series | IAMT Business Intelligence Unit

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Introduction

About this report

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IAMT Business Intelligence Report Methodology

This report was prepared using a hybrid research approach

This report leverages a comprehensive, hybrid research approach, combining diverse data sources and methodologies to ensure a holistic view of the industry trends. Our methodology encompasses the following key components:

Primary Research	**Quantitative**: Survey data is at the core of our analysis, providing quantitative insights into the industry's prevailing trends and sentiments.
	Qualitative: To complement our quantitative data, we conducted in-depth interviews with a select group of industry experts. These discussions have provided rich qualitative insights, adding depth and context to our findings.
Secondary Research	**Desk-based**: Our research is further enhanced by an extensive review of both structured and unstructured public data. This includes an analysis of industry executive quotes, reports, and publications, which offer valuable perspectives on industry trends. We have also incorporated quantitative data from reputable external sources. This data has been carefully selected to enrich our understanding of the industry dynamics and to provide a benchmark against our primary research findings.

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Executive Summary

Key learnings from the research

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Game Industry Convergence

Areas of research focus

Media technology organizations stand to benefit from the expansion of the game industry by exploring synergies including transferrable skills and technologies, as well as the monetization of intellectual property, and complementary methods of audience and fan engagement.

This report will examine areas of convergence and opportunity organized around three core areas of focus:

Brand IP

What opportunities are there for studios and content owners to create synergies for brand IP across video games, TV, and film?

Creative Pipelines

How is game engine technology influencing TV and film production? Are common tools used in development of content across industries?

Asset Management

How can creative assets be optimized for re-use in different mediums and formats?

Source: IAMT

Executive Summary – Brand IP

Key research findings:

Owners of brand IP (intellectual property) are exploring transmedia content creation workflows to increase the number of touchpoints for their brand universe, while optimizing the utilization of the media assets that they create.

Video game IP has seen a resurgence in film and broadcast media with a number of recent titles achieving commercial and critical success in both feature film and episodic narrative formats. Streaming services' investment in developing original content to attract and retain subscribers has been a contributing factor to the increased interest in adaptations to leverage established fanbases.

Broadcasters have experimented with mobile game development to create second screen experiences that complement shows by either extending their engagement with the program or adding additional interactivity during viewing.

Game developers, media studios, and independent content creators are building community strategies to cultivate fandoms and user generated content. Partnerships with generative AI companies can open up new ways for fans to engage with brand IP, while retaining control of fair use and the type of media that can be generated.

More sports clubs and federations are investing in content creation to engage fans across platforms and experiences. The principles of transmedia content creation can be beneficial and have underpinned some of the most successful case studies such as Formula 1's episodic Netflix Original series, *Drive to Survive.*

Executive Summary – Creative Pipelines

Key research findings:

Game engines have provided the foundation for the development of a range of new creative pipelines in broadcast and media, including augmented reality, mixed reality, and virtual reality content, as well as innovative virtual production practices that can introduce new efficiencies to production workflows.

Unreal Engine has become the default game engine used in news, live sports and studio production; however Unity and other proprietary engines are also used depending on the specific use case.

The ubiquity of Unreal Engine has come to dictate the roadmap of both vendors and end-users. However, both groups express a desire to not only remain engine agnostic but also actively diversify away from Unreal Engine to avoid dependency.

Platforms from vendors such as Disguise, Stype, Vizrt, and Zero Density provide end-users with the flexibility to build workflows and switch between render engines without needing to reconfigure their creative assets.

The growing demand for live interactive visual content in a variety of market verticals is driven by a demand for more "experiential" media and is supporting demand for real-time video content created with game engine technology.

> *"We aim to cross pollinate capabilities across markets. The render engine originated for virtual production XR, that is now used in live events and conferences. [...] We built RenderStream to be engine agnostic."*

Peter Kirkup
Innovation Director at Disguise

Executive Summary – Asset Management

Key research findings:

3D modelling and animation is the main point of convergence between video game development and media production workflows. As a result, storage and asset management technologies focused on each industry respectively share compatibility with common types of files and data.

From an operational perspective however, the organization of these assets will differ due to video game development and media production operating with different supply chains and project structures. Therefore, the development of a converged MAM (media asset management) or DAM (data asset management) product by technology vendors to serve both markets would still likely require differentiated user interfaces and go to market strategies for each addressable market to be effective for both and gain widespread adoption.

End-users in video game development and media production exhibit a common trend towards globalized access to assets for more distributed teams. While this is symptomatic of a broader cultural trend catalyzed by the COVID-19 pandemic, sector specific specialization of tools is still required due to sector specific concerns. These include considerations for the large file sizes of media assets, and the security of brands' intellectual property, as well as low-latency performance in certain workflows.

Adoption of the open source .USD (universal scene description) file format in workflows provides an opportunity for end-users in both video game development and media production that work with 3D assets to create workflow efficiencies by eliminating steps between working in different programs and applications.

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Brand IP

New opportunities presented by game industry convergence

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Game Industry Convergence – Brand IP

The advantages of transmedia content creation

Defining Transmedia Storytelling

Definitions of transmedia content creation highlight how the goal of transmedia is to tell a single story over multiple platforms. Brand recall is strongest when IP has been seen on all four screens, TV, desktop, phone and tablet. Commentators indicate that the most successful transmedia is audience or "fan-first". It is recommended that content on each platform should have a differentiated experience, for this reason video games have been a common feature in transmedia storytelling due to the interactivity and immersion they can deliver for fans.

Achieving a successful "fan-first" approach

Extending Reach & Fan Immersion

Transmedia storytelling strategies aim to broaden the reach and revenue of a brand IP by expanding the number of gateways into the narrative. Characters that have originated in video games can be positioned in film, TV series, comics and social content (and vice versa) to make them more accessible to fans beyond a single platform. This allows passionate fans to deepen their experience of the IP's universe and creates greater immersion and more frequent interaction for them with the narrative.

Audience Satisfaction & Community Integration

High-profile adaptations can run the risk of alienating core fans if mishandled and result in negative sentiment for the studio. This has been a common fault of early video game adaptations into feature films. As transmedia allows brand IP to scale audiences and communities it is important to integrate both new and existing fans. Successful transmedia strategies are considerate of audience expansion. Community leaders such as experienced players and UGC creators can help welcome new participants into the fandom.

Source: IAMT

Game Industry Convergence – Brand IP

Multiformat storytelling and experiences by selected media franchises

	Console Games	Mobile Games	Feature Film	Episodic Narrative	Podcast	Theme Parks	Events
Pokémon	Extended library across Nintendo consoles	Various titles. Notable success with AR format *Pokémon Go*	22 feature length anime 2019 live action *Detective Pikachu*	28 series of episodic anime since 1997	*The Playt Pokémon Podcast* covers competitive tournaments and trading card game	*PokePark Kanto* opened February 2026 in Japan	International and regional competitions for trading card game
Star Wars (Disney)	Extended library of titles. Various game studio partnerships	4v4 combat arena, turn-based collector, RPG titles available	Three trilogies and multiple spin-offs in unified cinematic universe	Seven live action series to date developed as exclusives for Disney+		Star Wars: Galaxy's Edge themed area at Disney World Florida and Disney Park California	Annual calendar of international Star Wars Celebration conventions
Super Mario (Nintendo)	Extended library across Nintendo consoles	Various titles including racing and puzzle formats	Record breaking animation feature *The Super Mario Bros. Movie*. Sequel slated for April 2026 release			Super Mario attractions feature at Super Nintendo World at Universal Studios Japan and Universal Studios Hollywood	
Formula 1	Series of 23 annual racing games released by EA Sports		2025 fictional feature *F1* produced as an Apple Original and distributed by Warner Bros. Pictures	Seven series of *Drive to Survive* released annually on Netflix since 2019	Three main official Formula 1 podcast series		Annual calendar of international Grand Prix Races
Wizarding World (Harry Potter)	Open world RPG Hogwarts Legacy (2023), co-op sports *Quidditch Champions* (2024)	Various titles. Card collecting multiplayer strategy game *Harry Potter: Magic Awakened* (2023)	11 feature films in cinematic universe across *Harry Potter* book adaptations and *Fantastic Beasts* series	HBO Original series adapting Harry Potter books to be released in 2027		Warner Bros. Studio Tour London. Featured areas at four Universal theme parks	

Please note that this table does not represent an exhaustive list of media produced by each franchise but highlights key content produced for each brand IP to illustrate different experiences available from each.

Source: IAMT, The Pokemon Company, Disney, Nintendo, Formula 1, Warner Bros. Entertainment

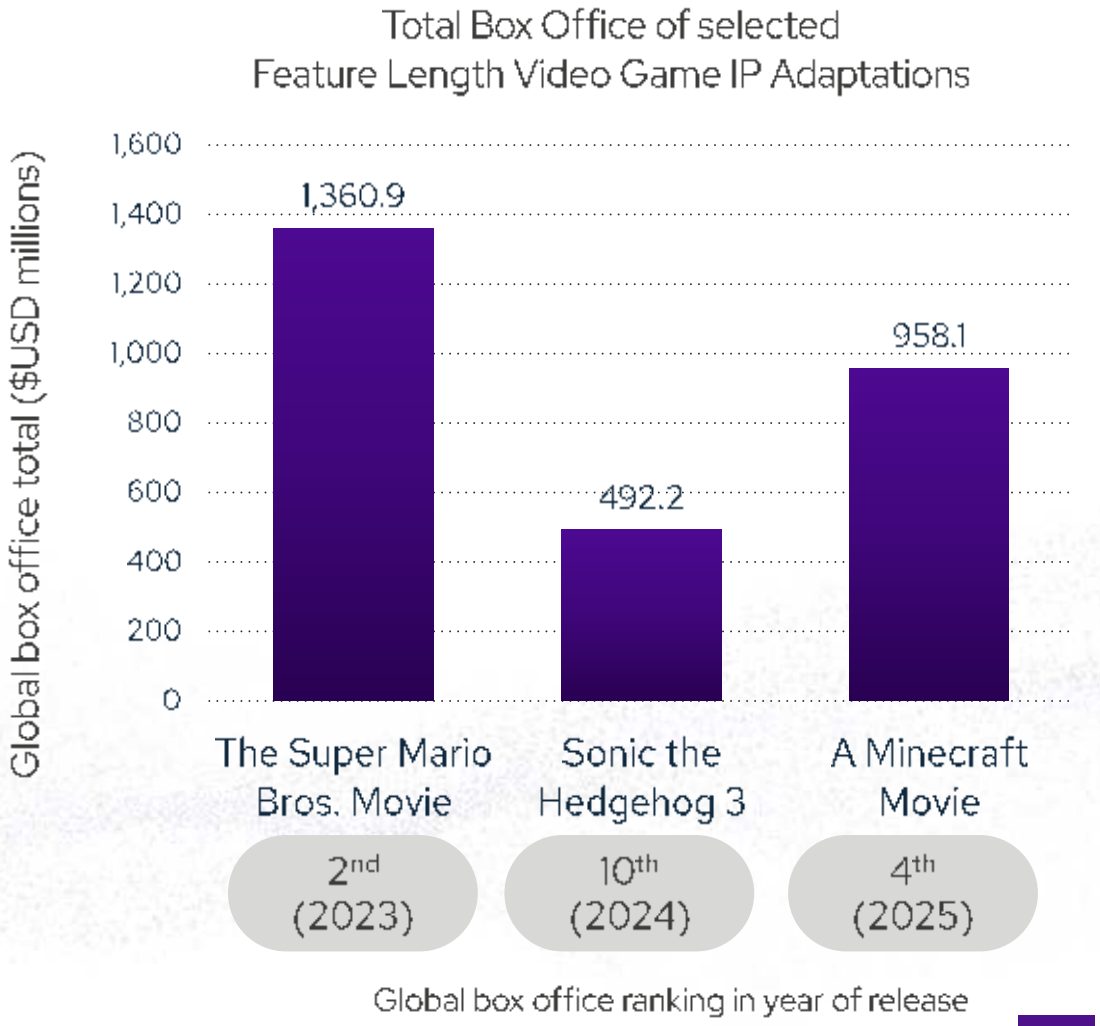
Game Industry Convergence – Brand IP

Studios achieve financial and critical success with game adaptations

Adaptation of video game IP and narratives into feature films and TV series is arguably the most common and direct form of convergence between the game industry and broadcast media, however game adaptations have historically underperformed both with critics and fans, leading to underwhelming financial returns.

In recent years the negative perception of video game adaptation has shifted due to a string of well received episodic narrative series commissioned as streaming originals. These include *The Witcher* (2019), *The Last of Us* (2023), and *Fallout* (2024). In parallel, feature length adaptations have also seen a resurgence with titles including *The Super Mario Bros. Movie* (2023), *Sonic the Hedgehog 3* (2024), and *A Minecraft Movie* (2025) ranking in the top ten highest grossing films at the global box office in their respective years of release.

Video Games often have a powerful built-in fanbase. The interactive nature of games mean players have agency over the story that builds deep loyalty and community engagement. It is important for producers to recognize the limitations of film and TV medium in this regard, while fans may have a more passive role in the consumption of this media than video games, there is still a desire to engage with the content by expressing their fandom through social media, events, cosplay, merchandise and content creation (UGC).



Source: IAMT, Company Filings, Box Office Mojo

Game Industry Convergence – Brand IP

Strategies for gaming to create second screen media interactivity

Interactive Shows

Netflix has consistently expressed a strategic interest in developing interactive formats that integrate with their streaming service. Previous experiments have included the "choose your own adventure" style episode of *Black Mirror, Bandersnatch,* and outdoor survival adventures starring Bear Grylles. The streamer announced in Q4 2025 a new streamlined approach to games, organizing development around four pillars, "mainstream", "narrative", "kids", and "party" under a unified games category added to Netflix's main screen. A preview event of selected party titles demonstrated gameplay on the main TV screen while players interact with mobile devices via a QR code.

Companion Apps

Companion apps and games can boost engagement with TV series and create extra revenue opportunities. To complement ITV's popular reality dating series *Love Island,* the broadcaster developed mobile RPG (role-playing game), *Love Island: The Game* with Fusebox Games. Branching narratives allow players to create a personalized experience of the show. Players can customize their avatars with in-app purchases of virtual goods. The game is now considered a standalone success with over 25million downloads globally and has led RPG charts in the UK, US and Australia. ITV and Fusebox Games renewed their partnership in 2024 with a three-year extension.

> *"We have big plans to grow the game's reach and take narrative storytelling games to the next level, with more storylines tailored to our audiences both in the UK and US. We are also exploring new brand partnerships to offer brand engagement and interest for players whilst growing commercial opportunities for the Love Island mobile game franchise."*
>
> **Steve Watling**
> SVP Gaming, Global Partnerships at ITV

Source: IAMT, Netflix Company Filings, ITV

Game Industry Convergence – Brand IP

Virtual casinos open new live video uses cases in betting and gambling

In parallel to console and mobile video games, innovations in the gambling and betting vertical are also leveraging advances in media technology. In particular the development of "virtual casino" concepts have frequently drawn on low-latency live broadcast and streaming technology to integrate gameplay with live interactivity for players.

One of the most successful models has been to introduce live dealers and hosts for classic tabletop casino games into online gambling platforms. This type of virtual casino experience requires a live production studio environment to be integrated with the established online gambling experience. By broadcasting or streaming real dealers operating physical tables, virtual casino operators can elevate trust with players. Live dealers also provide an additional social aspect to online gambling that can be less present in purely virtual formats.

To facilitate the live gameplay between dealer and remote participants a game control unit (GCU) feeds player actions to the dealer to advance play. Optical camera recognition technology is used to register what happens on the tabletop and digital interfaces are layered over online players' live feeds to enable players to interact in real-time.

The success of initial proofs of concept has led to growing investment in virtual casino studio environments. The success of live hosts has also led to the development of hybrid game show style gambling categories that provide a more accessible option to complement established casino table game formats (e.g. *Dream Catcher*, a money wheel game).

Another emerging trend is the integration of streaming culture with online gambling. Livespin introduced a concept called Bet Behind that combines virtual casino gaming with live streaming. Online players can bet alongside streamers to create a more social gameplay experience that leads to longer player retention.

Source: IAMT, SDLC Corp, Livespin

Game Industry Convergence – Brand IP

Esports represent video games in live streaming and broadcast

The esports phenomenon has led to video game developers increasing the reach of successful game titles' brand IP in streaming and broadcast supply chains.

Popular esports competitions can attract significant viewership online and on terrestrial broadcast services, with key competitive fixtures hosted as ticketed events in stadiums and arenas.

Game developers will now actively design multiplayer gameplay with competitive potential in mind with the goal of making the video game a successful esport.

The production workflow for an esports event will consider two key audience groups, an offline audience, those in attendance at the event, and an online audience, watching a broadcast or video stream feed.

- Offline production will focus on the in-venue experience for fans in stadiums, arenas, and dedicated esports venues.
- Online production will cater to remote viewers with considerations for graphics, overlays, ad-insertion, and personalization.

Esports production introduces unique technical and creative considerations to live production that aren't present in other live sports. For instance, to follow gameplay virtual camera operators will create video feeds for the vision mixer.

> *"These productions need broadcast-grade stability but also the agility of a live game environment. That's driven us to strengthen multi-camera synchronization in RedSpy, improve arena-scale motion tracking with Follower, and refine StypeCentral's playlist-based graphics control. It allows esports teams to make fast creative changes between rounds without any downtime or technical compromise."*
>
> stYpe Corporate Communications in an IAMT interview

Source: IAMT

Game Industry Convergence – Brand IP

Fan communities and UGC have become key to brand loyalty

Game publishers are embracing creator communities to support sustained engagement with releases over time. There is a long-established history of gamers developing and sharing unofficial updates to games that expand or alter the base game; these are commonly referred to as MODs (modifications). Some publishers now encourage user generated expansion of their games by providing tools and initiatives for player led customization and self-publishing within the game environment. Some creators that design MODs choose to monetize their work by using the strategies of the creator economy, for instance, using platforms like Patreon to collect donations from fans.

Unreal Editor for Fortnite (UEFN) enables individuals to publish games directly into Fortnite using out-of-the-box gameplay mechanics that are familiar to existing users. Epic Games enables financial incentives for creators through an "engagement payout" scheme that shares a percentage of net revenue from user generated games and items published into Fortnite's stores.

Video games are one of the top genres of user generated content created for social media and YouTube. Gameplay and esports account for a significant share of live feeds on the streaming platform Twitch. User generated content allows games to occupy an expanded presence across platforms, as well as more ways for fans to engage with the video games' brand IP.

To support creators Epic Games have created tools to allow creators to license their IP so that it can feature it in media that they monetize. The Fortnite creator tools license and incentivize in-game creators and allow the use of assets provided by Epic Games in UEFN. As a further extension and indicator of this model's success for extending the reach of brand IP, brand assets from LEGO were introduced to UEFN with their own set of brand guidelines and monetization regulations in March 2024.

This type of strategy has fed back into both the creator economy and mainstream studios.

- YouTube creator Jake Paul has opened up use of his digital likeness for free enabling his community to proliferate his image through their own UGC created with generative AI.
- In December 2025 Disney announced a $1b investment in OpenAI that included a three-year deal that would enable 200+ characters from the Marvel, Pixar and Star Wars franchises to be created in the Sora video generation tool. The available characters are limited to animated, masked, and creature characters to exclude the use of human performers voices and likenesses.

Source: IAMT, Epic Games, Disney, OpenAI

Game Industry Convergence – Brand IP

Sports clubs and federations also benefit from cultivating fandoms

The principles of transmedia storytelling are highly transferable to sports clubs and federations. Expansion of the fanbase through investment in broader media content reinforces itself by cultivating fans that convert to more classic revenue generation through ticket sales and merchandise.

As a result, many sports clubs, leagues and federations are diversifying their media output to offer more additional content beyond their live broadcasts of competitive fixtures.

While broadcast and streaming rights for top performing sports are becoming more costly for media companies to license, technology innovation such as cloud workflows and remote production are enabling coverage to be produced more cost effectively. As a result, broadcasters are investing in a greater diversity of tier three and niche sports to broaden their offering.

The democratization of video production and distribution through digital channels has also enabled sports clubs, leagues, and federations to invest in in-house production to achieve greater production and cost efficiencies as the volume of content produced increases, and to enable more consistency in brand image and voice across multiple platforms.

The Success of *Drive to Survive*

The Netflix documentary series *Drive to Survive* has been credited with successfully broadening the appeal of Formula 1 racing and attracting new fans to the sport. The series was a standout initiative in Liberty Media's strategy to grow the audience for F1 racing, that also included new race locations, and relaxed rules on social media use, after acquiring the global motorsports business in 2017.

A series of Global fan surveys commissioned by Motorsport Network in partnership with F1 and Nielsen evidenced the expansion of the F1 fanbase and the change in composition of its demographic.

The 2025 report differentiates "emerging fans" that followed the sport for 5 years or less to be more likely to be female, under 35, and from US, India or Southeast Asia. Meanwhile "legacy fans" that have followed F1 for 6 years or more trend towards older age ranges, male, and are concentrated in Europe.

Source: IAMT, Company Filings, F1 Motorsport Network 2025 Global F1 Fan Survey

Game Industry Convergence – Brand IP

Automotive brands are pioneering diverse uses of game engine media

The photorealistic capabilities of game engines to render physics-based reflections on surfaces has made them particularly advantageous for creating media that features automotives.

The opportunity to repurpose 3D models created in the CAD (computer aided design) process of automotive manufacturing into game engine pipelines enables efficient use of high-quality assets in a variety of applications.

Simulation

Game engines can be used to recreate specific driving test scenarios that would be too costly or dangerous to perform for real. This can allow more comprehensive testing and quality control through simulation.

Commercials & Advertisement

ICVFX virtual production volumes have proven particularly effective in the production of automotive commercials and advertisements. ICVFX delivers benefits over green screen and location shoots that are particularly advantageous to producers of automotive commercials and advertisements. These include accurate reflections captured in-camera as well as the safety and cost benefits of shooting in a controlled environment compared to location shoots that can require road and street closures.

Point of Sale

By producing accurate 3D models of vehicles new retail experiences can be created. VR headsets can be used to put prospective customers inside different vehicles as well as visualize customizations both in retail showrooms and online.

In Car Interfaces & Entertainment

HMI (human-machine-interfaces) are transitioning towards immersive photorealistic 3D experiences. Immersive cockpits and digital dashboards developed for automotive brands including Ford, General Motors, Rivian and Volvo have leveraged game engines such as Unreal Engine and Unity as a foundation for interactive 3D user interfaces.

High speed mobile connectivity such as 5G and Starlink can enable cloud-based gaming services and media streaming to be integrated directly into in-vehicle infotainment systems providing new opportunities for video game and media consumption.

Source: IAMT

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Creative Pipelines

Convergent benefits of innovation

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Game Industry Convergence – Creative Pipelines

The impact of game engines on creative pipelines in media

Game Engine technology is the main focal point that has driven convergence between the video game industry and broadcast media and entertainment.

The transition to 3D graphics in game development in the 1990s lead to the emergence of game engines as a means of automating graphics rendering, physics, and control with standardized tools. The three leading game engines during this decade were id Tech 1, Build Engine, and Unreal Engine 1.

Advancements in CPU and GPU capabilities over time have made the creation of photorealistic visuals possible with shaders, ray tracing, realistic physics and accelerations in rendering. This has allowed game engines to deliver results that can compete with cinematic CGI (computer generated imagery).

Unreal Engine has risen to prominence by using a licensing model. Although Epic Games produces its own game titles, since Unreal Engine 1, the studio has made its game engine available to other developers under license. By building on a 3rd party game engine, developers can focus their resources on creative ideas, gameplay dynamics and design, rather than building from scratch the technical foundations to run a video game experience.

During the 2010s the use of 3D in game development and post-production for broadcast and film became a site for the convergence of skills and technology, due to common software tools such as Maya and Zbrush being used in the creative pipelines for both disciplines.

In the late 2010s the use of game engine technology crosses over into broadcast and film production as enhancements in media server performance enables the introduction of real-time 3D creation to on-set production.

- In broadcast the launch of Zero Density's Reality Engine at NAB Show 2016 introduced the potential for photorealistic virtual studios to be used in live production environments.
- Early examples of in-camera VFX (ICVFX) workflows are iterated in the production of Hollywood feature films including *Oblivion* (2013), and *Solo: A Star Wars Story* (2018). ILM (Industrial Light & Magic)'s use of Unreal Engine with camera tracking and an LED volume to shoot series one of the first episodic Star Wars series for Disney, *The Mandalorian* (2019), draws widespread industry attention to ICVFX workflows and the concept of virtual production.

International travel restrictions and restrictions on both location and studio production shoots during the COVID-19 pandemic catalyze additional interest in virtual production. During this period a variety of technology vendors accelerate a process of democratization that enables ICVFX, virtual studios, and other applications of game engine technology to be used by a broader range of end-users by developing tools that simplify the integration and operation of these workflows.

In 2021 Peter Jackson sold Weta Digital's VFX technology division to Unity Software, for a total of $1.625b. The acquisition signals a significant effort by Unity, to compete with Epic Games in the VFX market for broadcast and film.

Research contributors noted that generative AI innovation carries disruptive potential for new game engine models to be developed and introduced to the market in the short to mid-term that could alter the competitive landscape.

Sources: IAMT, Zero Density, Industrial Light & Magic

Game Industry Convergence – Creative Pipelines

An introduction to contemporary game engines

Not all game engines are ready for convergent application in media production for broadcast, film, and immersive entertainment. The typical use cases and the level of adoption in media and broadcast for three key contemporary game engines is summarized below.

UNREAL ENGINE

- Unreal Engine, developed by Epic Games, is now used widely across vertical applications including game development, virtual production for broadcast and film, architecture and live events.
- Unreal Engine can be used to quickly create photorealistic worlds with reflections and has become well established in ICVFX virtual production workflows, and in virtual studio environments as several media technology vendors have built solutions that integrate Unreal Engine into established workflows.

Unity

- Unity is widely used for indie game development, as well as social games for mobile and web applications. It is also commonplace in experiential AR (augmented reality) and VR (virtual reality) applications.
- Unity is not as commonly used for virtual production as Unreal Engine. Unity is frequently used in mobile games and art installations as it offers an intuitive learning curve to start with but also possesses power and complexity for when users become more advanced and ambitious.

GODOT
Game engine

- Godot is a more recently emergent game engine that has gained popularity in the indie game development community as it is free and open source. Godot supports cross-platform projects and XR (mixed reality).
- As a newer market entrant Godox is not yet established in virtual production or high-fidelity graphics but is quickly developing a community of users due to its open-source nature.

Source: IAMT, Epic Games, Unity, Godot

Game Industry Convergence – Creative Pipelines

The role of AI in the next generation of game engines

- Artificial intelligence, and in particular generative AI, is disrupting established creative pipelines across industries by introducing new tools for ideation, pre-visualization, and content generation. Research contributors noted the disruptive potential for generative AI and the introduction of new foundational models to influence how game engines are used and developed.
- Research and prototype projects have emerged that illustrate the potential for AI to influence the tools used in the established creative pipeline for game development. World engines and new models that are in development could pose an alternative to game engines in certain use cases if they are adopted into professional workflows.

Google DeepMind

- In August 2025, Google DeepMind previewed Genie 3, a general-purpose world model.
- A world model operates differently to a game engine; it simulates the dynamics of an environment and predicts their evolution and the effect of actions performed within them.
- The research prototype, Project Genie is based on Genie 3, Nano Banana Pro, and Gemini. It was released as a web app to Google AI Ultra subscribers in the United States in January 2026. International release is forthcoming.

Microsoft Muse

- Microsoft Muse is a generative AI model designed for gameplay ideation announced in February 2026.
- Described as a WHAM (world and human action model), Muse can generate game visuals, and controller actions.
- The WHAM Demonstrator application provides a visual interface for the model and prompting, with weights and sample data made available as open source via Azure AI Foundry.

Source: IAMT, Google, Microsoft

Game Industry Convergence – Creative Pipelines

The convergence and differentiation between media and games

	Areas of Convergence	Areas of Differentiation
Pre Production	Common technologies can be used for the creation of storyboards and pre-visualization	TV and film may require more travel for location scouting and preparation
Production	Game engines and motion capture are used in production and animation	Live production and ICVFX workflows require reliable real-time low latency performance
Post-Production	3D modelling and rendering is used. This is part of the production phase in game development.	Video games need testing and debugging.
Finishing and Delivery	Multiple versions are created to satisfy audiences in international markets.	Final cut of TV and film completes the asset. Ongoing community support and updates for games are expected after the game's initial release.
Monetization	Media publishers are trending towards subscription services. Physical media is being phased out.	Microtransactions and in-app purchasing is more mature in video games than TV and film.
Management and Storage	The workforce is becoming more globalized. Access has to be decentralized but remain secure.	Media production draws more heavily on video and audio file formats while binary data is prevalent in video games.

Source: IAMT

Game Industry Convergence – Creative Pipelines

A convergent ecosystem has been built on game engine technology

Early integrations of game engines with broadcast and film workflows relied heavily on bespoke coding and development.

- Live broadcast applications of game engines to render motion graphics and virtual studios were developed through partnerships between Epic Games and established media technology vendors including Ross Video, Vizrt, and Zero Density.
- Cinematic workflows for feature films and narrative series were initially integrated by studios' own research and development teams, often in close collaboration with VFX and post-production providers.

With growing interest from media production more vendors and service providers have leveraged Unreal Engine as a basis to build products and services. Vendors have also created plug-ins and launched standalone resources to further support the integration of established products and tools with Unreal Engine.

Epic Games has cultivated the use of its game engine further in broadcast and live events productions by managing a verified service provider program, called the Unreal Authorized Service Partner Program.

> *"It is easier for us to apply investment across verticals. An Unreal generalist can be in a shared pool of industries. You are not only converging the technology, you are converging the talent pool that you are hiring from."*

Tom Evans
Cinema Product Manager at NCAM, A Zeiss Company

Sources: IAMT, Epic Games

Game Industry Convergence – Creative Pipelines

Established use cases for convergent technologies

A number of creative pipelines built on converging game industry and media production technology are now well established and continue to attract investment for deployment by production companies, as well as innovation and refinement by technology vendors and service providers. These include:

Virtual Studios

2D and 3D studio environments can be created digitally to create cost savings and efficiencies. Virtual set extensions can also enhance XR (mixed reality).

Virtual studios can enable content creators with limited resources to increase their production value with consistency branding and visual that they couldn't previously achieve without a physical studio set.

Motion Graphics & Augmented Reality

Game engines can provide advanced rendering capabilities for photorealistic motion graphics and visualizations of complex data.

Motion graphics can augment reality by placing digital assets into real world scenes with realistic use of perspective, reflections, and shadows.

ICVFX (In-Camera Visual Effects)

Visual effects are captured in-camera during production. Time consuming keying and rotoscoping processes from greenscreen/bluescreen production are removed, while the talent and crew can visualize the environment on set.

The 3D environment is displayed as a frustum on an LED wall or projected backdrop that moves in sync with the tracked camera. By shooting in a virtual environment additional control and time efficiencies are gained over location-based shooting.

Motion Capture

Motion capture records real life movement and performances to inform 3D models and animation. The process can deliver more realistic and natural results than digital rigging and animation.

Techniques used to create computer generated characters for film and TV are now used frequently to enhance performances in video games from cutscenes to character animation.

Game Industry Convergence – Creative Pipelines

The adoption of real-time tools in media supply chains

In studio production creatives can use game engine tools to accelerate the process from pre-visualization to final output.

Adoption has been motivated by the opportunity to accelerate creative pipelines. The application of real-time rendering, for example with ICVFX workflows, speeds up feedback loops between crews on set and post-production teams. With quicker iterations of deliverables and communication between production and post, errors that could require costly reshoots can be avoided and project timelines can be condensed. These benefits were cited as increasingly advantageous as production timelines become shorter and expectations for time to market become imperative.

The integration of tools into broadcast workflows focus on uptime and reliability. These developments can tie back into delivering stability for all applications. Game engines do not offer dedicate response and support that would be expected in broadcast and film production, so the ability to provide support can be an additional service or value add for vendors and production companies addressing this vertical.

As this is an emerging field of production access to talent is limited. Technology providers can accelerate the use of their tools by supporting the growth of freelancer pools and advancing creatives' technical skills. Providing freemium options, educational license models and other pathways to access tools can help newcomers to experiment and adopt real-time tools with minimal upfront risk.

> *"We're seeing a strong convergence happening in real-time, camera-tracked environments. Broadcasters, film studios, and game developers are all after the same thing now: low-latency tracking that integrates smoothly with Unreal Engine and allows for fast iteration on set."*

stYpe Corporate Communications in an IAMT interview

Game Industry Convergence – Creative Pipelines

Access to Unreal Engine in broadcast and media has changed

The use of Epic Games' Unreal Engine has democratized realtime graphics workflows for a range of use cases and accelerated adoption of game engines in broadcast and studio productions. However, in March 2024 Epic Games announced an update to their commercial mode of Unreal Engine that introduced a seat-based enterprise software pricing model for industries outside of game development. This took effect with Unreal Engine 5.4 in April 2024.

Epic Games identifies the main applications outside of game development for enterprise use as linear content for TV and broadcast, architectural visualizations, and graphics for broadcast and live events.

Due to this business model update vendors that use Unreal Engine in their products are diversifying their technology to be engine agnostic.

Pricing for Enterprise

$1,850 per seat subscription on a fixed user basis. Admin users can transfer seats.

Applied to companies grossing over $1m in annual revenue that do not create games, and do not create applications for third parties that rely on Unreal Engine code at runtime.

Students, hobbyists, educators and companies with gross revenues under $1m are except.

UNREAL ENGINE

Pricing for Game Publishers

5% in royalties for products that exceed $1m in lifetime gross revenue.

The first $1m is exempt from royalties as are all revenues earned through the Epic Games Store.

Source: IAMT, Epic Games

Game Industry Convergence – Creative Pipelines

A mature ecosystem of camera tracking products has developed

Camera tracking technology is vital to many creative pipelines that rely on interaction between real physical cameras and virtual environments. Data such as camera position, settings, and lens adjustment are sent to the game engine to be matched with a virtual copy. These systems are typically based on one of two tracking methodologies:

- **Outside-in tracking:** external fixed sensors track the movement of the camera. This type of system is advantageous for large scale environments and/or multi-object tracking.
- **Inside-out tracking:** sensors are mounted on the camera to track the surrounding environment. These are easier and less costly to deploy but sacrifice accuracy. Physical proximity and technical interoperability with cameras and lens has resulted in partnerships and acquisitions between camera tracking brands and established camera and lens manufacturers.

ncam a ZEISS company

- Established in 2013 from a VFX/cinema background and acquired by Zeiss in 2023.
- Systems mounts a lightweight sensor on-camera that creates a 3D point cloud of its surrounding to create positional data.

STYPE

- Founded in 2012, with operational hub in Zagreb, Croatia.
- Stype Redspy is a marker based optical tracker for augmented reality (AR) and virtual studio production.

mo-sys

- Mo-Sys offers an extensive range of camera tracking products in a range of form factors.
- The StarTracker series is a marker based optical system for 3D position and lens data.

SONY

- Sony entered the camera tracker market in 2025 releasing OCELLUS a marker-free system based on visual SLAM (Simultaneous Localization and Mapping) technology.
- Free ICVFX software was released in 2023.

Source: IAMT, NCAM, a Zeiss Company, Mo Sys, stYpe, Sony

Game Industry Convergence – Creative Pipelines

ICVFX has become an established tool in media production

Camera tracking products are moving into smaller more compact form factors as workflows mature and vendors focus on improving ease of use for operators.

Partnerships and collaboration between camera manufacturers and LED panel vendors have been established to fine tune the colour calibration of both imaging sensors for acquisition and LED tiles for display to ensure color accuracy.

As part of Sony's Virtual Production Tool Set released in 2023, a Color Calibrator app was included that simplifies the calibration process with the Sony Venice digital cinema camera. The app produces a test pattern that when recorded by the camera can enable the app to generate a calibrated 3D LUT that can be applied to the LED controller, color management tool or Unreal Engine.

Integration and deployment of ICVFX stages often referred to as "LED volumes" has transitioned from large scale permanent facilities into more dynamic multipurpose and adaptable spaces.

Use of ICVFX volumes in cinematic and studio production is becoming more specialized. Rather than aiming to shoot an entire episode or feature on an LED volume, producers are employing their use more selectively for shots and circumstances where the creative pipeline delivers advantages to the production in terms of time, cost, and/or logistical benefits.

> *"The growing market for virtual production and AR demands simpler, more efficient workflows. Metadata like camera position and lens values are crucial for pre- and post- production."*

Sebastian Leske
Head of Business Development at Cinema Line Sony

Source: IAMT, Company Filings

Game Industry Convergence – Creative Pipelines

Drivers of game engine technology adoption in live broadcast

Specialized UI and dedicated tools have emerged for using game engine workflows in rundown driven environments. This is particularly relevant to news production but also live sports. National election coverage was identified as a frequent driver for AR graphics investment by news broadcasters.

The introduction of game engine rendered graphics to live sports production has been a disruptive influence in the market. Tier one broadcasters and production companies will compete to serve the best visual spectacle to audiences and will invest in new technology that delivers this on-screen. As a result, established vendors of live graphics have had to adapt their products to support Unreal Engine in response to end-user demand for a familiar and reliable front-end user interface.

The adoption of game engines in live broadcast has been driven by the appeal of real-time 3D graphics. However established broadcast graphics like score boards and news tickers are typically added as 2D inserts. Epic Games developed Project Avalanche in collaboration with broadcast end-users as a dedicated toolset for broadcast motion graphics. This accelerated adoption as Unreal Engine can now be used as the single render engine for both 2D and 3D graphics in the workflow.

Data visualization and augmented reality infographics have been desirable in both live news and sports productions. End-users noted that game engines are not "plug and play" for live data visualization use cases. Plug in support and a control interface are necessary to apply these tools in a live production environment; the creation of templates that can be populated with data are also advantageous. A specialized service provider can prepare templates for broadcast; however, vendors are democratizing their tools by adding their own templates and assets for end-users to build on.

> *"In sports you always need a flashy graphic. Therefore, a lot are adopting Unreal at the moment. Also, AR infographics, they need a lot of real-time data integration."*
>
> **Kenneth Tsai**
> CEO at Dot Connector

Source: IAMT

Game Industry Convergence – Creative Pipelines

Acquisition tools for 3D modelling are advancing

As 3D modelling is integral to many creative pipelines for video game development and media production, the technology used to originate them are influential to both industries. As with the tools used in many creative pipelines, the tools to create high-fidelity 3D models are becoming democratized. Skills augmentation, intuitive interfaces, training resources, and pricing models that lower the barrier to entry all contribute to making 3D tools available to a broader range of end-users, without the need for highly specialized knowledge.

Historically, 3D assets have been created manually by 3D artists with modelling tools.

Photogrammetry is an acquisition process that allows highly accurate 3D models and textures to be captured from real world references using commercially available camera technology, including smartphones, digital cameras and drones, rather than being modelled from scratch. 3D point clouds, meshes, textures, and digital twins can be rapidly produced using photogrammetry from hundreds or thousands of overlapping photos. Software processing is used to map images over one another to create a 3D mesh or point cloud. These assets can be further refined in specialized software. The main limitation of photogrammetry is the processing power on the capture device for image capture and processing.

3D Gaussian Splatting (3DGS) is a revolutionary technique for the capture and rendering of real-world scenes that won the Best Paper Award at SIGGRAPH 2023. It uses ellipsoids to represent scenes rather than mesh-based models. This methodology introducing notable benefits for real-time rendering and the representation of details (particularly reflective surfaces) over traditional photogrammetry. A wide variety of free applications and open source tools have already been developed that apply the benefits of this technology.

Polycam

- Available as a smartphone app, Polycam is an accessible photogrammetry tool that can capture and process 3D models on mobile devices.

EPIC GAMES

- Epic Games released a free cloud-based application MetaHuman Creator that creates photorealistic 3D human characters that can be used in many formats.
- MetaHuman Creator was fully integrated into Unreal Engine as of version 5.6.

Source: IAMT, Polycam, Epic Games

Game Industry Convergence – Creative Pipelines

In the experience economy memories are the product

Experiential content can be location based or digital. Experiences can be varied in format but are unified by their use of immersive and interactive technologies to create a participatory environment that leaves a lasting memory.

Audio visual content is a primary storytelling tool that can be used to create experiences due to audiences' familiarity with consuming it, and the scalability of assets across both digital environments. The delivery of audiovisual content for experiential content is a major site of technology convergence as live streams, video games, and video collaboration platforms (e.g. Zoom, Microsoft Teams, Google Meet) can all function as sites for digital experiences to take place. Display technology from mobile devices and head mounted displays to installed AV such as LCD screens, projectors, and LED walls are all used to deliver location-based experiences.

During the pandemic era, virtual experiences proliferated to compensate for the restrictions on regular events. This period of innovation led to the creation of more sophisticated and premium virtual formats, and recognition of the ability to monetize them. However, in the post COVID era, location-based experiences have returned to the fore. A contributing factor to this consumer demand has been the continued prevalence of remote working culture, as many individuals have less opportunity for in-person interaction in their daily lives, shared experiences have become more sought after. From a commercial standpoint shared-experiences that create human connection are more advantageous over at-home virtual formats as they can present a greater range of monetization opportunities.

> *"Pure VR, in some ways, is the competition. It is an isolated experience. You don't go out – you don't buy hotdogs. What excites us is hyper-personalized, shared experiences using augmented or mixed-reality devices."*

Peter Kirkup
Innovation Director at Disguise

Source: IAMT, Integrated Systems Europe: Broadcast AV Summit 2026

Game Industry Convergence – Creative Pipelines

The experience economy is a catalyst for technology convergence

The growing demand for these varied new formats of events and content are creating opportunities for a range of products and services from convergent video game and media supply chains. Media servers, game engines, real-time 3D visualization tools, projection mapping, and camera tracking, are all products that can play a role in the developing ecosystem of technology used in the experience economy.

New technologies have been applied in the performing arts to introduce new immersive and interactive dynamics to music, dance, and theatre experiences typically in installed venue environments.

The growth of location-based experiences is also now leading these technologies to be integrated with architecture and the built environment. Outernet London is a representative example of how the trend towards experiential content is redefining venues and architecture. The site in central London contains two live events venues with installed AV equipment and above ground The Now Building and Now Trending spaces are open to the public hosting free audio-visual experiences daily. The Now Building and Now Trending spaces are described by Outernet as "public galleries". These installations use wrap-around LED screens with interactive features to broadcast branded experiences at a site adjacent to major transport hub (Tottenham Court Road tube station) and retail destination (Oxford Street) creating an intersection between advertisement, and entertainment, as well as public, cultural, and retail spaces.

Despite growing investment in location-based experiences, video games continue to be a popular site of innovation and experimentation due to their ability to capture the attention of younger audiences, in particular the Gen Z and Gen Alpha demographics. MMOs (massive multiplayer online games), such as Fortnite and Roblox, provide large audiences of engaged daily users and an interactive environment to extend fan experiences with IP. For instance, in November 2024, Fortnite registered a total of 14.3 million concurrent players during their in-game concert, *Remix: The Finale*, which featured in-game performances by Snoop Dogg, Eminem, Ice Spice and Juice WRLD. The developer continues to blur the boundary between video game experience and traditional film and TV media with regular experimentation. Recently in November 2025, an official music video for Daft Punk's track *Contact* was released as an in-game cinematic sequence within Fortnite.

Source: IAMT, Integrated Systems Europe: Broadcast AV Summit 2026, Outernet London

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Asset Management

Operational convergence in supply chains

theiamt.org/biu

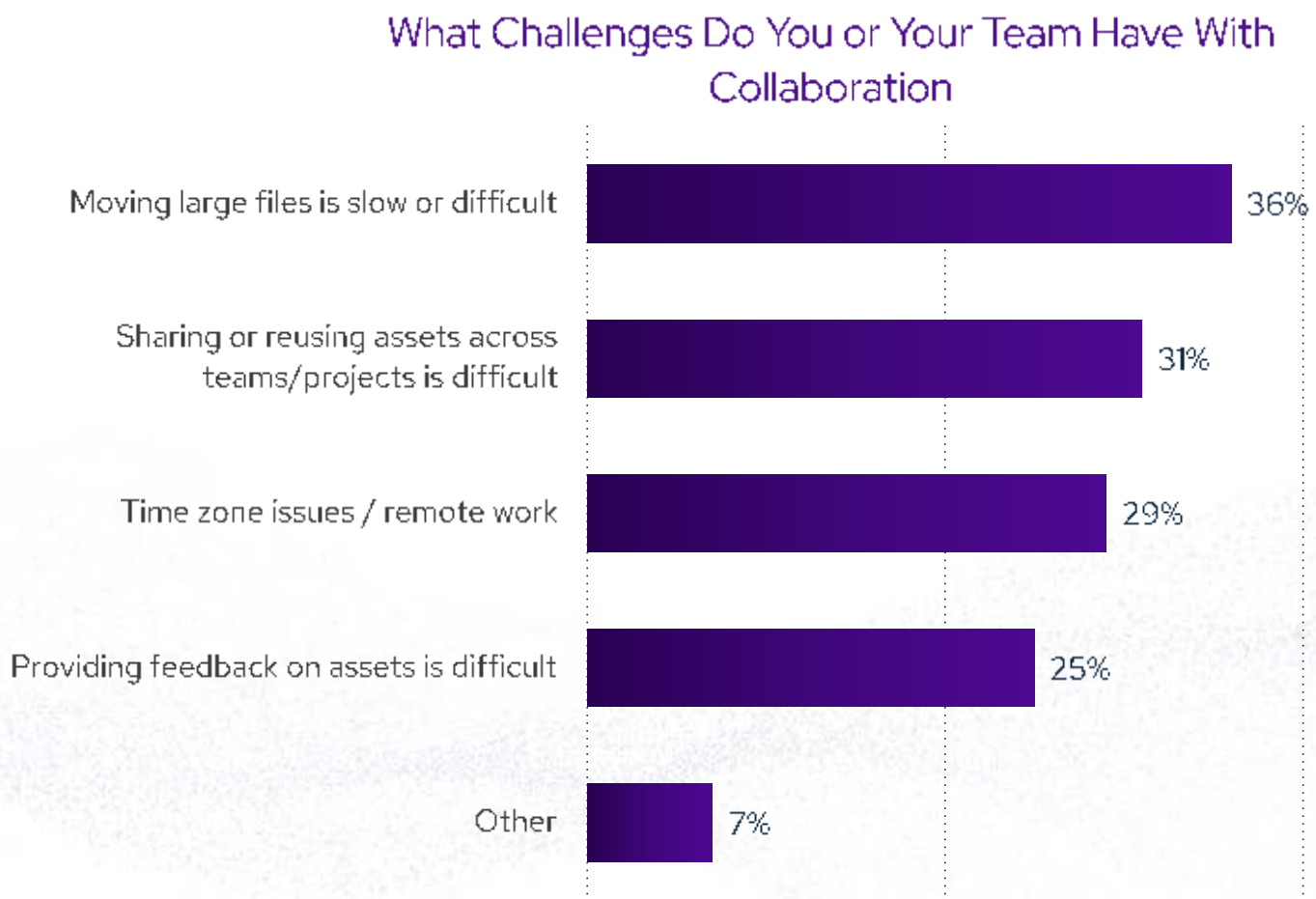
Game Industry Convergence – Asset Management

Convergent trends in storage and organization

The volume of content acquisition is increasing. Due to the increasing quality of what is acquired, the volume of storage is increasing notably at the beginning of the content supply chain as the amount of content and its quality rises.

A common theme is present in both media production and video game development, organizations' workforces have become more global. This global expansion of resource requires storage and organization of assets to provide a platform for distributed teams and international collaboration.

In both instances very large data sets or files need to be moved across distances for global teams with very little latency. As a result, the security concerns of both video game development and media production are very similar, particularly concerning the value of the intellectual property. Preventing data leaks and piracy is important to both groups for revenue protection. It is commonplace in both verticals for supplier to follow industry standards and be prepared for security audits. Media and video game supply chains will follow universal IT and cybersecurity standards along with sector specific precautions though they are not notably influenced by one another in a convergent way.



Source: IAMT, Perforce State of Game Technology Report

Game Industry Convergence – Asset Management

Management solutions for storage and organization

Video game development relies on the creation of large binary files. Media production and broadcast typically involves the organization and rapid access to a variety of media types including audio and video files and can also include transport of live signal feeds in broadcast and streaming supply chains.

Digital asset management (DAM) solutions are used in video game development. Examples include Git LFS (large file storage), Unity Version Control (Plastic SCM), and Perforce (Helix Core). Large binaries like art assets and game data are included as well as code. Depending on the size of the development team and codebase this will need to scale from a single central repository or distributed copies.

Game developers rely on software for management and version control. Popular solutions will provide a visual interface for artists (Helix DAM or P4 DAM). Contemporary solutions feature intuitive interfaces, a single sign on to access tools in cohesive workspace, and a single source of truth, preventing conflicts in the publication of files. Vendor and freelancer access to assets can be controlled via granular access for secure collaboration while protecting intellectual property.

Chain of custody features are important to documents access, movement and alteration of assets.

A critical feature for media and broadcast users is the speed of access to assets, either for efficient playback in editing environments or minimizing latency in linear production workflows. Tiered storage systems will be used to efficiently manage large media assets and their associated cost of storage. MAMs designed for media production will include functionality for metadata tagging and integration with non-linear editor (NLE) platforms.

Source: IAMT, Perforce

Game Industry Convergence – Asset Management

Integration and interoperability considerations for asset management

Media asset management (MAM) and production asset management (PAM) tools were reported to see their closet convergence with practice from game development in VFX houses. VFX and video games are more closely tied than other media production workflows due to the common engagement with compute generated imagery (CGI).

> Access, searchability, and playback were cited as the most fundamental features.

The trend in the product category is from monolithic heavy iron solutions towards management of more fragmented globalized assets, over a more agile and flexible network. While storage of assets becomes more distributed globally the user experience for operators should be seamless. MAMs are most valuable where they can act as a single pane of glass to unify all storage points.

Customers want tools that provide an open environment for integration or adaptation. Open APIs are often an important consideration to enable interoperability and best of breed content supply chains to be built. End-user sentiment reflects mistrust for vendors pushing proprietary systems fearing vendor lock in, and risk of obsolescence.

Security requirements will typical be dictated by the end-customer. A certain level of security and access will be necessary to win an account. Asset management tools that follow best practice in media production and video game development respectively will present less friction for buyers to adopt them into their workflows and be a preferred choice.

> *"The industry isn't centralized anymore. Content is distributed across clouds, regions, partners, and production teams, which creates complexity. When assets are spread across disconnected environments, teams lose visibility into the full picture. The priority now is restoring clarity – unifying visibility, controlling access, and enabling action across that distributed landscape."*
>
> **Chris Fournelle**
> Director, Content and Marketing Production at Signiant

Source: IAMT

Game Industry Convergence – Asset Management

Creative pipelines streamlined by adoption of open source file format

Developed by Pixar Animation Studios to underpin their 3D asset pipeline, the USD (Universal Scene Description) file format, ".usd", was made available to the industry as open source in 2016. The file format is now supported by an ecosystem of 48 applications from 29 vendors including Adobe, Apple, Autodesk, Foundry and Maxon.

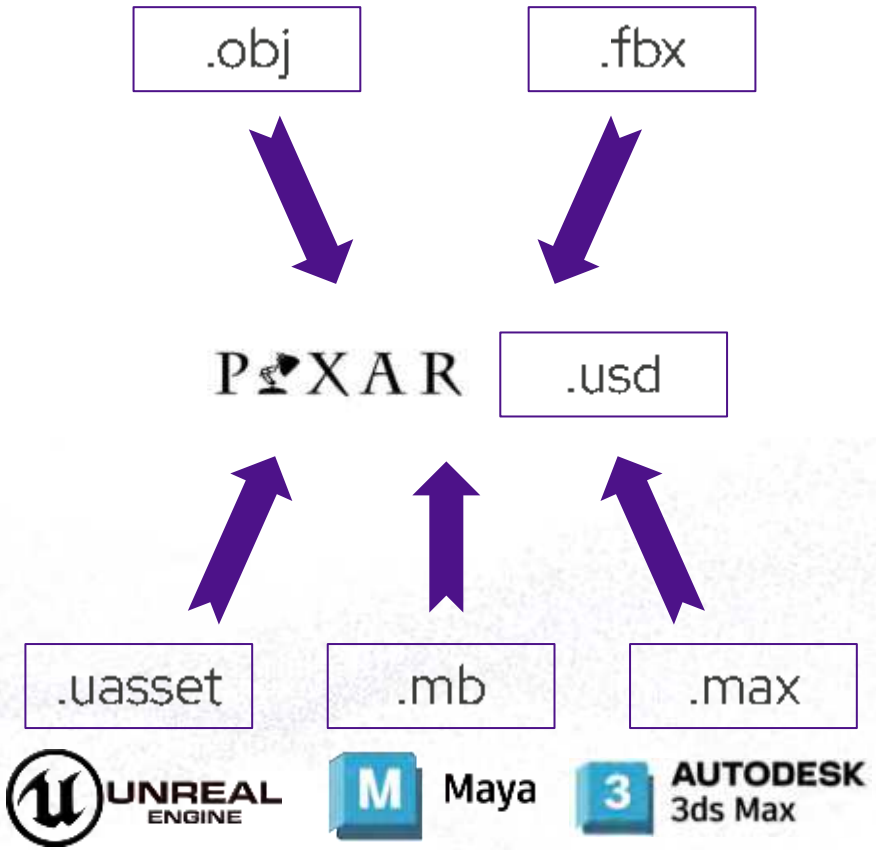
USD allows a single file to operate in multiple different software applications, and update dynamically across platforms as changes are made. This removes the need to render and export files to move them from one tool to another.

USD enables the interchange of elemental assets for assembly and organization of 3D scenes between different applications. Non-destructive editing and a single consistent API for USD supports collaborative work by multiple artists in the same or different departments.

The initiative is frequently likened to IMF (Interoperable Master Format) established by SMPTE (standard 2067-2) due to a similar goal of simplifying file exchange, although each serves a distinct use in the overall content supply chain and do not compete for adoption.

The growing implementation of .USD evidences media production and game industry convergence as the file format drives alignment between 3D animation and game development pipelines.

.usd replaces the need for multiple different film formats that are unique to their respective application



Source: IAMT, OpenUSD.org, Avid, NVIDIA Studio YouTube Channel

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