

The Diversification of Media on Connected TV Devices and Applications

The Connected TV (CTV) ecosystem is undergoing a profound transformation, moving beyond its traditional role as a conduit for linear and video-on-demand content to embrace a rich array of non-traditional media formats. This evolution, encompassing games, interactive quizzes, dynamic news services, and innovative video formats, is driven by a powerful interplay of evolving consumer preferences and rapid technological advancements. Consumers are increasingly seeking personalized, interactive, and cost-effective entertainment experiences, while innovations in Artificial Intelligence (AI), interactive advertising, and programmatic capabilities enable content creators and advertisers to meet these demands with unprecedented precision. We've examined the accelerating adoption of these diverse media forms on CTV devices and applications, detailing the underlying market dynamics, the emergence of new monetization models, and the critical challenges that accompany this dynamic growth. Our analysis underscores CTV's emergence as a central, interactive hub for media consumption, presenting unparalleled opportunities for stakeholders to engage audiences in new, measurable, and impactful ways.

1. The Evolving Connected TV (CTV) Landscape

1.1 Defining Connected TV (CTV) and Over-The-Top (OTT)

To understand the evolving media landscape, it is essential to distinguish between Connected TV (CTV) and Over-The-Top (OTT). A Connected TV is broadly defined as any television set utilized to stream video content over the internet.¹ This category encompasses a range of devices, including smart TVs with integrated internet capabilities (e.g., Samsung Smart TV), dedicated streaming devices that connect to a TV screen (e.g., Roku, Apple TV, Fire TV), and internet-connected gaming consoles (e.g., Xbox, PlayStation, Wii).¹ Essentially, CTV refers to the hardware, the physical screen and its associated internet connectivity, through which digital content is accessed.

In contrast, Over-The-Top (OTT) refers to the method of content delivery. It describes streaming services that provide video, audio, or even messaging content directly to users via the internet, bypassing traditional broadcast, cable, or satellite television

providers.² Services like Netflix and Hulu are prime examples of video OTT services, while Spotify represents an audio OTT service.² The crucial distinction is that OTT is the service that delivers internet-enabled content, and this content can be consumed on any internet-connected device with a screen, including mobile phones, desktop computers, and, critically for this report, CTV devices.²

The differentiation between CTV as the device and OTT as the content delivery service is more than a semantic nuance; it holds significant implications for strategic planning in content creation and advertising. While OTT content can be accessed across a multitude of devices, the consumption of this content specifically on CTV devices emphasizes a unique "lean-back" viewing experience, typically on a large screen within a communal living room setting.⁶ This distinct viewing context influences the types of content and advertising formats that prove most effective. For instance, advertising strategies developed for mobile OTT, which often feature shorter, skippable ads designed for on-the-go consumption, differ considerably from those tailored for CTV OTT, where longer, unskippable, and interactive advertisements can thrive in a high-attention environment.⁶ A clear understanding of this distinction is therefore fundamental for advertisers and content creators to develop effective campaigns and allocate budgets appropriately, ensuring that content and ads are optimized for the unique characteristics of the big screen.

1.2 CTV Market Growth and Household Penetration

The Connected TV market is experiencing robust expansion, solidifying its position as a dominant force in media consumption. In the United States, CTV household penetration has reached impressive levels, with 88% of households owning at least one internet-connected TV device in 2023.¹⁰ Projections indicate that this figure will continue to climb, with an estimated 85% of U.S. households expected to use at least one CTV device by 2025⁷, and 121 million U.S. households anticipated to use CTVs by 2027.¹¹

This widespread adoption is paralleled by a significant shift in viewing time. As of March 2025, streaming accounted for 43.8% of overall TV time in the U.S., marking a substantial 10-point increase in just two years.¹² On average, Americans now dedicate over three hours per day to streaming content, with CTV platforms commanding a substantial portion of this engagement.⁷ This mass migration from traditional linear television, particularly among younger demographics, underscores that CTV is no

longer merely an emerging platform but has become the primary screen for content consumption for a growing segment of the population.⁷

The financial commitment to CTV reflects this shift. Global CTV ad spending is forecast to reach \$48 billion in 2025, representing a remarkable 33% increase from \$36 billion in 2023.⁷ In the U.S., CTV ad spending is projected to hit \$33.35 billion in 2025, a 15.8% increase from the previous year.¹³ This growth trajectory surpasses all other digital ad categories, including social media and digital video, signaling that CTV advertising has transitioned from an experimental channel to a primary strategy within media budgets.⁷

Demographically, Millennials are poised to be the largest age group utilizing CTV by 2025, with an estimated 62.6 million users.¹⁰ Gen Z and Millennials, as digital-first consumers, demonstrate high engagement, with 82% watching ad-supported CTV weekly.⁷ This generational shift away from linear TV and subscription-based streaming platforms is a key indicator of CTV's long-term dominance.

While the U.S. leads in CTV adoption and ad spending, regional markets in Europe are also demonstrating significant growth. Although Europe has historically lagged behind the U.S. in CTV advertising, markets are now experiencing breakthroughs, with combined linear and CTV ad revenues projected to increase by 5% in 2024, reaching €3.8 billion.¹⁰ In the second half of 2024, Europe saw a 24% year-on-year growth in overall ad viewership, compared to 10% in the U.S..¹⁸ CTV devices captured the majority of total ad views in Europe (66%) and a substantial portion of ad views for live programming (77%) during the same period.¹⁸ These figures, while varying slightly across different forecasts, collectively paint a clear picture of an expanding and dynamic market.

The consistent high household penetration coupled with the significant increase in viewing time demonstrates that CTV has fundamentally reshaped the television landscape. This transformation means that the traditional "primetime" viewing experience has become fragmented across numerous CTV applications, yet it remains highly accessible through digital precision. The substantial shift in advertiser budgets toward CTV, with global spending projected to reach tens of billions by 2025, is a direct consequence of this audience migration. This financial commitment validates CTV not just as a growing platform, but as a central component of contemporary media strategies. The differing ad spend projections from various sources, while all pointing upwards, highlight the dynamic and evolving nature of this market, indicating that while the overall trajectory is clear, the precise scale is still being refined, presenting both immense opportunities and a degree of market fluidity for

stakeholders.

1.3 Key Drivers of CTV Adoption and Diversified Media Consumption

The rapid adoption of CTV and the diversification of media consumption within its ecosystem are propelled by a powerful, self-reinforcing cycle of consumer demand and advertiser investment.

From the consumer perspective, a fundamental shift in viewing habits is evident. There is a strong desire for greater control and personalization over content consumption.⁷ Viewers are moving away from rigid traditional broadcast schedules towards on-demand, flexible, and tailored entertainment experiences. This preference is significantly enhanced by intuitive user interfaces, personalized content recommendations, and the convenience of voice search functionality available on smart TVs and streaming platforms.²⁰ Furthermore, a growing phenomenon of "subscription fatigue" and rising costs for ad-free streaming services has led a substantial majority of U.S. CTV users (64-73%) to express a preference for ad-supported content if it reduces their expenses.⁴ This economic factor is a powerful incentive driving audiences towards Free Ad-Supported Streaming TV (FAST) channels and other ad-supported models. Additionally, modern consumers frequently multitask while watching television, engaging simultaneously with social media or online shopping on a second device.¹⁵ This prevalent behavior creates a need for content experiences that can capture and maintain attention even amidst divided focus, directly influencing the demand for more engaging and interactive media formats.

These evolving consumer behaviors create a compelling environment for advertisers. CTV offers advanced targeting capabilities that far surpass those of traditional linear television, allowing marketers to reach specific demographic segments, tailor messages based on viewing patterns, expressed interests, and even purchase history.⁷ This precision significantly reduces media waste and optimizes advertising spend. The channel also provides robust measurement capabilities, enabling real-time tracking of impressions, completion rates, and conversions, which was previously unavailable in traditional TV advertising.²⁶ This enhanced measurability allows for data-driven decision-making and campaign optimization. Consequently, CTV campaigns consistently demonstrate a higher return on investment (ROI), boasting a remarkable 23% higher ROI compared to traditional television advertising.⁷ This proven efficiency and profitability have elevated CTV to a primary strategic channel within media

budgets.⁷

Underpinning these shifts are foundational technological advancements. The increasing global internet penetration, coupled with rapid technological progress and the declining prices of new CTV devices, has made connected television accessible to a wider audience.³² Furthermore, the pervasive adoption of programmatic advertising has brought unprecedented agility and efficiency to CTV. By automating ad placements and leveraging real-time bidding, programmatic platforms enable marketers to scale personalized campaigns across numerous publishers and devices while maintaining control and optimizing budgets automatically to the most impactful placements.⁷

This dynamic interplay forms a powerful, self-reinforcing cycle. Consumer demand for flexible, personalized, and cost-effective content drives them to CTV and ad-supported models. The resulting growth in engaged CTV audiences, combined with the platform's superior targeting and measurement capabilities, makes CTV exceptionally attractive to advertisers. This increased advertiser investment, facilitated by programmatic advancements, then fuels further innovation in content and ad formats, including the non-traditional media types discussed in this report. This cycle creates more compelling and interactive experiences, which in turn attract even more viewers, perpetuating the rapid diversification and growth of the CTV ecosystem. The observed multi-tasking behavior of consumers further emphasizes the necessity for more engaging content to capture and retain attention, directly linking to the burgeoning rise of interactive formats across the platform.

2. The Ascent of Non-Traditional Media on CTV Devices and Apps

2.1 Gaming on CTV: Expanding Beyond Consoles

Gaming has long been a significant activity on devices connected to televisions, with dedicated gaming consoles like Xbox, PlayStation, and Wii recognized as fundamental CTV devices.¹ However, the landscape of gaming on CTV is undergoing a notable expansion, moving beyond these traditional consoles to integrate more natively within smart TV platforms and streaming devices.

Smart TVs, particularly those powered by platforms like Google TV, are increasingly

serving as direct platforms for a diverse range of gaming experiences.³⁴ Through integrated app stores such as the Google Play Store, users can now easily find, install, and play games optimized for TV interfaces. This includes a wide array of casual games, exemplified by titles like

Crossy Road and *PAC-MAN*, which are well-suited for navigation with a standard TV remote.³⁴ Beyond casual gaming, the advent of cloud gaming services, such as GeForce Now, allows high-end games (e.g.,

Cyberpunk 2077) to be streamed directly to CTV devices, eliminating the need for expensive dedicated gaming hardware.³⁴ This development means that gaming is becoming a more accessible and native application experience directly on the television itself, broadening its appeal to a wider audience beyond traditional console gamers.

This evolution transforms the television from a predominantly passive viewing device into a versatile, interactive entertainment hub for a much wider demographic. The integration of gaming directly into CTV apps also opens up significant monetization opportunities. In-game advertising and "advergaming"—games specifically designed to promote a brand or product—are gaining considerable traction on CTV platforms.³⁷ This approach capitalizes on the deep engagement inherent in gaming environments, allowing advertisers to connect with consumers directly within interactive experiences on the largest screen in the home. This blurs the lines between entertainment, advertising, and direct commerce, expanding the very definition of "media" on CTV to include highly interactive, performance-driven engagements. The progression from gaming as a console-centric activity to a native app experience on smart TVs signifies a strategic shift, positioning gaming as an integral and growing component of the broader CTV ecosystem.

2.2 Interactive Quizzes and Gamified Content Experiences

Interactive quizzes and gamified content experiences are emerging as powerful tools for enhancing viewer engagement on CTV, particularly within advertising. These formats are transforming traditional, one-way advertisements into dynamic, two-way interactions.

Interactive CTV advertisements frequently incorporate elements of gamification, such

as quizzes, polls, surveys, mini-games, and challenges.³⁸ This approach replaces passive viewing with active participation, allowing audiences to interact directly with ads using their remote controls or, less frequently, QR codes and voice commands.³⁸ For instance, an interactive ad during a sports stream might ask viewers to predict the winner of an upcoming game, with their responses potentially influencing subsequent ad tailoring.³⁸ Examples of standalone gamified content available on CTV platforms include popular titles like

Wheel of Fortune and *Trivia Crack*, demonstrating the appeal of such interactive formats.³⁶ Streaming services like FuboTV have also explicitly introduced interactive trivia and polls as new ad formats, signaling a broader industry adoption of these engaging techniques.⁴⁰

The effectiveness of gamified ads is substantiated by their high engagement rates. Advergames, for example, have been observed to generate engagement rates of 4.6% or higher, significantly surpassing typical advertising benchmarks.⁴¹ This heightened interaction translates into increased viewer attention and recall, drives higher conversion rates, and enables the collection of valuable real-time feedback or preferences from the audience.³⁸

The strategic adoption of gamified content by platforms and advertisers is a direct response to the challenge of capturing and retaining viewer attention in a media environment increasingly characterized by multi-screening and fragmented focus.¹⁵ By requiring active participation, these formats convert a passive viewing experience into an active, immersive one, leading to deeper engagement. The measurable success of these interactive elements, as evidenced by concrete engagement data, reinforces their value. This signifies that a purely linear, passive advertising experience is no longer sufficient to stand out. Gamification transforms the advertisement itself into a memorable experience, fostering stronger brand connections and providing valuable first-party data on viewer preferences, which can then be leveraged for further content and ad personalization. This marks a redefinition of the role of advertising, moving it from mere exposure to an active, co-created experience.

2.3 The Transformation of News Consumption on CTV

News consumption on CTV devices is undergoing a significant transformation, moving beyond traditional linear broadcasts to embrace dedicated streaming applications

and innovative, AI-driven formats.

Major news organizations have developed robust applications specifically optimized for smart TVs and streaming devices, facilitating a direct migration of news consumption to the CTV ecosystem. Platforms like NBC News, PBS, CNN, Fox News, and Haystack News now offer comprehensive apps that provide breaking news, top stories, live news coverage, special reports, and full episodes of news programs, accessible either on-demand or via live streams.⁴² This transition allows viewers to integrate news into their personalized streaming habits, rather than being confined to scheduled broadcast times. The Public Broadcasting Service (PBS) app, for instance, enables users to stream over 4000 PBS and local shows on-demand, including iconic series like PBS NewsHour and FRONTLINE, and also offers live streams from local stations.⁴³

A more profound shift in news consumption on CTV is the emergence of "AI-driven idle screens." Modern smart TVs are transforming their inactive displays into dynamic, intelligent content hubs.⁴⁴ When the TV is not actively being watched, these idle screens can display real-time news headlines, sports scores, and weather updates, which continuously refresh throughout the day.⁴⁴ This functionality, exemplified by technologies like Glance TV, leverages sophisticated AI algorithms to personalize content based on user preferences, viewing habits, and even the time of day.²⁰ For instance, Glance's AI engine can determine whether to show news headlines, sports scores, or relaxing imagery based on a user's typical usage patterns, creating a highly convenient and always-on information source within the home environment.⁴⁴

This development means that news is evolving from a scheduled event or an active search into a passive, ambient information utility deeply integrated into the fabric of the smart home. For news providers, this opens new avenues for continuous reach and monetization, such as through contextually relevant advertisements displayed on idle screens.⁷ For users, it offers unparalleled convenience, blurring the lines between traditional entertainment and essential information services. The television is effectively transforming into a personalized information dashboard, providing continuous value and engagement even outside of dedicated viewing sessions. This shift is further supported by technological advancements in news production, such as the move towards cloud-based live news production, enabling more flexible and dynamic content delivery tailored for the streaming environment.⁴⁶

2.4 New Video Formats: Short-Form, Shoppable, and Interactive Narratives

The definition of "video" on CTV is rapidly expanding beyond traditional long-form content to encompass a diverse range of innovative formats, driven by consumer demand for engaging and actionable experiences. This convergence of content, commerce, and engagement is fundamentally redefining the video experience on CTV.

Short-Form Video on the Big Screen:

Platforms traditionally associated with mobile-first, short-form video are actively migrating their content to CTV devices. TikTok and Instagram, for instance, are bringing their popular Reels and TikToks to the big screen, aiming to capture an older demographic and tap into the lucrative premium CTV advertising market. This move acknowledges the growing trend of "snackable" content finding a home in the living room. YouTube has been a pioneer in this space, with 15% of its short-form YouTube Shorts content now viewed on CTV. Furthermore, YouTube has introduced a new 30-second non-skippable CTV ad format in beta, specifically optimized for brand storytelling in the high-attention environment of large screens. This development demonstrates a recognition that short-form content, while originating on mobile, can be effectively adapted and monetized for the lean-back CTV experience.

Shoppable Content:

Perhaps one of the most transformative new video formats is shoppable CTV advertising. These interactive ads empower viewers to browse and purchase products directly from their TV screens using their remote control, eliminating the need for a second device. This capability transforms advertising from a passive brand-building exercise into a direct commerce channel. For example, a sports apparel brand could display a new line of shoes, allowing viewers to explore product details and make a purchase directly through their TV remote.

The effectiveness of shoppable ads is significantly enhanced when interaction is native to the TV experience. Data indicates that remote-based interactions are substantially more effective than QR codes, which require viewers to pick up a smartphone. Roku, for instance, observed 10 times higher engagement with remote-controlled shoppable ads, and overall industry data suggests remote interaction is 150 times more effective than QR code scans.⁶ This underscores a critical design principle: for interactive elements to succeed on CTV, they must seamlessly integrate with the lean-back viewing experience. While direct "buy now" options are available, consumers often prefer an "add to cart" option when shopping on TV, indicating a tendency to research before immediate purchase.⁶ This suggests

that CTV is influencing the earlier stages of the purchase funnel, not just driving impulse buys. Major platforms like Amazon Fire TV are leveraging this by linking ads directly to Amazon product pages for immediate purchases, and Tubi has launched its own shoppable ad formats and storefronts.²⁴

Interactive Narratives:

Interactive video storytelling represents a profound shift in how narratives are consumed on CTV. This format allows users to actively participate in the content, featuring branching storylines, multiple paths, and decision-based outcomes, reminiscent of "choose-your-own-adventure" experiences. This non-linear storytelling approach significantly enhances engagement, personalization, and memorability for the viewer.⁵¹ Instead of passively watching, viewers become co-creators of the story, making the experience more immersive and impactful. Platforms like Netflix have experimented with interactive midroll and pause formats that incorporate custom advertising creatives, overlays, and call-to-action buttons, allowing for deeper viewer interaction within the narrative flow. Similarly, Amazon Interactive Video Service (IVS) enables interactive live streams, polls, voting applications using timed metadata, and synchronized companion retail elements, further blurring the lines between content, engagement, and commerce.

Other Innovative Video Formats:

Beyond these major categories, other innovative video formats are enhancing the CTV experience. Dynamic overlays and countdown ads are utilized to create a sense of urgency for limited-time offers or product launches, while polls and surveys embedded within ads facilitate data collection on viewer preferences. New ad placements are also emerging, such as "pause ads" (semi-translucent ads appearing on frozen content screens), "squeezeback ads" (particularly effective for live sports, where content is reduced to make room for an ad), and "companion ads" that run alongside the main content. Furthermore, advancements in creative automation tools now allow vertical video content, typically designed for mobile, to be naturally extended and adapted for large horizontal screens, maximizing content utility across platforms.

These new video formats collectively redefine what "video" signifies on CTV. It is no longer confined to traditional linear broadcasts or simple video-on-demand. Instead, it has evolved into a dynamic, multi-directional medium where entertainment, advertising, and direct transactions are seamlessly interwoven. This convergence creates a richer, more personalized experience for viewers and unlocks unprecedented opportunities for direct-response and brand-building for advertisers.

and content creators alike. The emphasis on remote-native interaction for shoppable ads and the branching nature of interactive narratives highlight a maturing ecosystem that understands and caters to the unique CTV user experience, driving deeper engagement by minimizing friction.

Table 2: Key Interactive CTV Ad Formats and Examples

Format	Description	Example
QR Code Ads	Scannable codes within ads redirecting to websites, offers, or app downloads.	A concert advertisement displaying a QR code for direct ticket purchase. ³⁸
Dynamic Overlays	Real-time interactive elements (buttons, product info, social links) appearing on top of video ads.	A streaming service promoting a new TV series with an overlay button to add the show to a watchlist. ³⁸
Shoppable CTV Ads	Allow browsing and purchasing products directly from the TV screen using the remote.	A sports apparel brand showcasing new shoes with clickable elements for product exploration and purchase. ³⁸
Countdown Ads	Display a timer for limited-time offers, sales, or product launches, creating urgency.	An airline advertising a flash sale on flights with a visible countdown timer indicating deal availability. ³⁸
Polls and Surveys	Encourage viewer participation by selecting preferences with a remote, collecting valuable data.	An interactive ad during a live sports stream asking viewers for their predictions on the winner of an upcoming game. ³⁸
Gamified Ads (Advergames)	Include mini-games or challenges to provide engaging experiences and enhance brand recognition.	A soccer apparel brand allowing a user to play a mini-game to score a goal and win a discount code. ³⁸
Interactive Narratives (Choose-Your-Own-Adventure)	Branching storylines where viewer choices influence the plot and outcome.	An interactive musical where audience votes determine the progression of the story and musical numbers. ⁴⁴

3. Technological Innovations Fueling Diversification and Engagement

3.1 The Role of Artificial Intelligence (AI) in Content Curation and Ad Personalization

Artificial Intelligence is revolutionizing the CTV landscape by acting as a sophisticated intelligence layer that transforms how content is curated and how advertisements are personalized. Its applications extend far beyond basic automation, fundamentally changing the viewer's experience and the advertiser's capabilities.

AI algorithms play a crucial role in enhancing personalization and content recommendations. By analyzing a viewer's habits, app usage patterns, and even the time of day, AI can deliver highly relevant content suggestions, significantly improving content discovery and extending viewer engagement.²⁰ This moves beyond generic recommendations, enabling "For You" platforms that learn continuously from user habits to provide tailored suggestions and even uncover niche content that viewers might otherwise miss.²⁰

A particularly impactful application of AI is in contextual targeting for advertising. AI transforms how brands capture attention by analyzing content at a granular level, considering elements such as genre, tone, keywords, and visual cues in real-time.⁷ This sophisticated analysis allows for ad placements that are hyper-relevant to the content being consumed, leading to a remarkable four-fold increase in attention compared to ads that are not contextually matched.⁷ This capability is a direct response to the need for precision and relevance in advertising, especially in a privacy-conscious environment, as it enables effective targeting without relying on personal identifiers.²⁵ The ability of AI to delve deeper into metadata, analyzing specific topics within a show or visual scenes, provides a level of targeting precision previously unattainable.²⁵

Furthermore, AI is increasingly being leveraged for creative generation and optimization. It offers applications for producing premium-quality ad creatives, enabling real-time campaign optimization, and enhancing personalization at scale.²⁷ The expectation is that generative AI will become even more sophisticated, capable of

delivering highly realistic content and offering new methods for optimizing ad spend to maximize return on investment.³⁰

Collectively, these AI-driven capabilities transform CTV from a platform that merely delivers digital ads into a highly intelligent and responsive medium. AI addresses key advertiser requirements for relevance and brand safety²⁵ while navigating evolving privacy regulations. The continuous advancement of generative AI suggests a future where content and ad creatives can be dynamically generated and optimized at scale, leading to unprecedented levels of personalization and efficiency across the CTV ecosystem.

3.2 Advancements in Interactive Ad Technologies

The success of interactive content on CTV hinges on technological advancements that prioritize a seamless, remote-native user experience. These innovations are specifically designed to cater to the "lean-back" nature of TV viewing, minimizing friction and maximizing engagement.

Interactive CTV advertisements are designed to leverage the remote control for direct engagement, offering clickable elements, survey responses, and intuitive navigation options.² This approach is crucial because the TV viewing environment is fundamentally different from mobile or desktop, where touchscreens and mouse clicks are native. The "lean-back" interaction model, where viewers are typically seated comfortably and interacting with a remote, necessitates a design that feels natural and unobtrusive.⁶

A critical finding in the development of interactive ad technologies on CTV is the clear superiority of remote-based interaction over QR codes. While QR codes are a common interactive element, requiring a second device (a smartphone) to scan them introduces a "slight inconvenience" that disrupts the lean-back experience.⁶ Data from Roku revealed a 10 times higher engagement rate for remote-controlled shoppable ads compared to those requiring a QR code scan.³⁰ More broadly, remote interactions have been shown to be 150 times more effective than QR code scans.⁴¹ This direct comparison demonstrates that for interactive content and ads to be truly effective on CTV, they must be designed specifically for the big screen and its native input methods, avoiding reliance on external devices that break the immersive flow.⁶

Beyond basic remote interaction, advancements enable dynamic and contextual elements within ads. This includes dynamic overlays that can present real-time information or calls to action, countdown timers that create urgency for limited-time offers, and real-time polls or surveys that gather immediate viewer feedback.³⁸ Platforms like Amazon Interactive Video Service (IVS) are at the forefront of these innovations, enabling interactive live streams with features like polls, voting applications that utilize timed metadata, and synchronized companion retail elements, allowing for seamless e-commerce integration within live content.⁵⁶

Furthermore, new and innovative ad placements are emerging to maximize viewer attention. These include "pause ads," which are semi-translucent advertisements that appear when content is paused, "squeezeback ads," particularly effective for live sports, where the main content shrinks to accommodate an ad alongside it, and "companion ads" that run side-by-side with the primary content.⁴⁶ These formats leverage the unique characteristics of the CTV screen to deliver engaging experiences without being overly disruptive.

The emphasis on designing for the lean-back experience is a key takeaway for content creators and advertisers. Attempting to simply port mobile-first interactive elements without adapting them for the CTV environment will likely lead to underperformance. The continuous development of platform tools and innovative ad placements demonstrates a maturing ecosystem that understands and caters to the unique CTV user experience, driving deeper engagement by minimizing friction and maximizing the potential of the largest screen in the home.

3.3 Programmatic Advertising and Data-Driven Strategies in CTV

Programmatic advertising has become the dominant force driving growth and diversification within the CTV ecosystem, promising unprecedented precision and efficiency in ad delivery. However, this rapid expansion also presents significant challenges related to fragmentation and trust that the industry is actively working to address.

The shift to programmatic buying is undeniable. By 2025, an estimated 70-75% of CTV advertising transactions will be conducted programmatically, leveraging automated technology and real-time bidding.⁷ Programmatic CTV is projected to account for over 90% of both display and video ad spending on CTV in 2025.²⁵ This widespread

adoption is driven by the substantial benefits programmatic offers to advertisers. It provides precise audience targeting based on demographics, location, behavioral insights, and first-party data, including advanced Automatic Content Recognition (ACR) targeting.⁷ This allows for highly relevant ad delivery and reduced media waste. Programmatic also offers budget fluidity, enabling dollars to automatically flow to the most impactful placements, and facilitates real-time optimization of campaigns.⁷ Advertisers can test multiple ad versions across different audience segments and scale personalized campaigns efficiently.⁷ The integration of AI further enhances programmatic CTV by improving the efficiency of bidding and optimization, and by enabling more granular contextual targeting based on detailed content metadata.¹⁴

Despite these advantages, the programmatic CTV landscape faces several critical challenges. One significant hurdle is market fragmentation. The numerous streaming platforms and devices operate with different identifiers and often in silos, complicating efforts to achieve scale and consistent cross-platform targeting.⁵ This fragmentation makes it difficult for media buyers to access enough quality ad inventory to scale campaigns effectively, especially when compared to the more centralized nature of linear TV.⁵

Another persistent issue is measurement inconsistencies. The tools and methodologies for measuring CTV ad performance are often nascent and do not align consistently with metrics used for other digital channels.⁵ Many brands still rely on last-touch attribution models, which frequently undercount the true impact of CTV, giving disproportionate credit to channels like search and social.²⁸ Only a minority of global marketers (32%) currently measure their media spending holistically across both digital and traditional channels.¹²

Furthermore, a lack of transparency regarding content metadata is a source of frustration for advertisers. Publishers often withhold detailed content-level information, citing privacy regulations such as the Video Privacy Protection Act (VPPA).⁶³ This opacity leaves advertisers without clear insight into where their ads are appearing and whether they are placed alongside premium, brand-safe content.⁶³ This situation is reminiscent of the early days of digital display advertising, where similar issues of transparency were eventually resolved through industry demand for openness.⁶³

Finally, the rapid growth of CTV has made it an attractive target for ad fraud. Malicious actors engage in practices like artificially inflating ad impressions, manipulating ad engagements, or spoofing users to steal revenue.⁶⁴ Ad fraud impressions surged by 220% in 2024, costing advertisers billions of dollars.⁶⁴ While protective measures exist,

industry-wide adoption of standards has been less than universal.⁶⁴

The industry is actively responding to these challenges with sophisticated solutions. Identity resolution solutions, which connect user attributes and actions across multiple touchpoints, are becoming critical for accurate targeting and creating a unified customer journey across fragmented platforms.³⁰ Data clean rooms are gaining popularity as they allow multiple brands to collaborate on data securely without compromising user privacy, addressing concerns around data security and compliance.³⁰ There is also a strong and growing call for industry-wide acceptance of standardized definitions and best practices to improve efficiency, enhance measurement, and effectively combat ad fraud.⁵ This indicates that programmatic CTV is in a crucial maturation phase. Overcoming these structural challenges through a combination of technological innovation and industry-wide policy adoption is essential to fully realize its immense potential and build enduring advertiser trust. The future success of CTV advertising hinges on balancing its innovative capabilities with robust infrastructure, stringent privacy safeguards, and effective fraud prevention measures.

4. Monetization Opportunities and Business Models

4.1 The Rise of Ad-Supported Video On Demand (AVOD) and Free Ad-Supported Streaming TV (FAST)

A defining trend in CTV monetization is the significant rise of Ad-Supported Video On Demand (AVOD) and Free Ad-Supported Streaming TV (FAST) channels, driven primarily by evolving consumer preferences. A substantial majority of U.S. CTV users, ranging from 64% to 73%, express a preference for ad-supported content if it allows them to pay less for streaming services, or they actively choose free ad-supported streaming TV (FAST) channels over subscription-only models.⁴ This strong consumer demand for cost-effective entertainment is a powerful market signal.

This preference directly fuels the surge in viewership for FAST channels, which include platforms like Tubi, Pluto TV, Samsung TV Plus, and The Roku Channel.¹⁴ These platforms are experiencing rapid growth, particularly among demographics such as late adopters aged 55 and older, who are increasingly embracing streaming content.²³

The growth of AVOD and FAST is further propelled by factors such as "subscription fatigue" among consumers, rising subscription prices for premium SVOD (Subscription Video on Demand) platforms like Disney+ and Netflix, and broader economic uncertainties that encourage viewers to seek out free entertainment options.²³

The market impact of this trend is significant. FAST platforms are expanding the available ad inventory on CTV, creating new opportunities for advertisers. This model also lowers the barriers to entry for smaller brands, as it often involves competitive outsourcing and lower creative costs compared to traditional linear TV advertising.²³

The widespread consumer preference for ad-supported content, particularly when it translates to lower costs or free access, represents a crucial shift in the CTV monetization landscape. This demand signal directly drives the rapid expansion of AVOD and FAST channels, which are strategically positioned to capture audiences experiencing subscription fatigue and economic pressures. This creates a massive new pool of ad-supported inventory, making CTV advertising more accessible and affordable for a wider range of brands, including those with more modest budgets. This development enables a broader spectrum of content creators to find audiences and monetize their offerings, thereby fostering further diversification of media types available on CTV. It also exerts competitive pressure on traditional SVOD models, as evidenced by Netflix's strategic decision to introduce ad-supported tiers.²³ This trend signifies the democratization of CTV content, where free access fuels both audience expansion and the growth of available ad inventory.

4.2 Hybrid Monetization Strategies

In response to the diverse and fragmented preferences of consumers, content providers and platforms are increasingly adopting hybrid monetization strategies on CTV. This approach involves combining multiple revenue models—including Subscription Video on Demand (SVOD), Ad-Supported Video on Demand (AVOD), Transactional Video on Demand (TVOD), and Free Ad-Supported Streaming TV (FAST)—within a single OTT platform.⁶⁶

This strategic flexibility allows providers to tailor their revenue streams based on specific content types, user preferences, and overarching platform goals. For example, highly anticipated new releases or exclusive content might be offered via a TVOD model, requiring a pay-per-title purchase.⁶⁶ Conversely, extensive libraries of

evergreen or niche content can be made available through AVOD or FAST channels, monetized primarily through advertising.⁶⁶ Furthermore, SVOD tiers can offer an ad-free premium experience, while lower-cost, ad-supported SVOD tiers increase accessibility and potentially improve subscriber retention for cost-conscious users.⁶⁶

Leading industry players are already implementing these sophisticated hybrid models. Netflix and Disney+, for instance, have embraced this approach by introducing ad-supported SVOD tiers, allowing them to cater to users who prefer a more affordable option while simultaneously generating additional ad revenue.⁶⁶ Amazon Prime Video combines its SVOD offering with TVOD, providing members with free content alongside options for pay-per-title rentals or purchases, thereby expanding monetization beyond the core subscription.⁶⁶ Hulu operates an advanced dual-tier model, offering both a lower-cost plan with ads and a premium, ad-free version, further integrating live TV and various add-ons.⁶⁶

The primary benefit of hybrid models is their ability to offer flexible pricing structures that attract a wider audience, catering to various "willingness-to-pay" segments among consumers. This strategic approach creates multiple, diversified revenue streams, significantly increasing the platform's financial resilience and reducing reliance on a single income source.⁶⁶ Moreover, hybrid models enable better content utilization; older or niche titles that might not justify a subscription fee can find new value and generate revenue through ad-supported or free channels.⁶⁶ This flexibility encourages content creators to produce a broader variety of content, knowing there are multiple pathways to monetization on CTV. While implementing and managing these diverse models can present user experience challenges in navigating between subscription, free, and pay-per-view options seamlessly, platforms are actively working to optimize these interfaces to minimize confusion.⁶⁶ This strategic flexibility is key to maximizing content value across the spectrum of consumer preferences.

4.3 New Revenue Streams: Shoppable Content and Brand Partnerships

The evolution of CTV is not only diversifying content but also creating entirely new revenue streams, particularly through shoppable content and innovative brand partnerships that transform the advertising paradigm from mere impressions to direct transactions.

Shoppable content on CTV is rapidly emerging as a powerful monetization model. As

discussed, these interactive ad formats allow consumers to purchase products directly from their television screens using their remote controls.⁶ This capability fundamentally changes the role of advertising, moving it beyond brand awareness to directly drive sales and conversions. The demand for such commerce-enabled ads is significant, with over 40% of viewers expressing a desire to purchase directly from TV ads, and one-third of ad buyers planning to increase investment in commerce ads in 2025.⁴¹ This shift is supported by the fact that 79% of consumers say TV ads influence their purchasing decisions, with nearly half having made purchases after seeing a TV ad.⁴¹

Retail media networks are at the forefront of leveraging CTV for shoppable experiences. Platforms like Amazon and Walmart are integrating CTV into their retail media strategies, offering brands a blend of immersive storytelling with precise targeting capabilities.²⁹ This allows for the delivery of personalized, shoppable video content directly to consumers, enhancing engagement and driving conversions.²⁹ Retail media's share of CTV ad spending is expanding rapidly, growing approximately three times faster than retail media search in 2025.²⁴ This indicates a major shift in how brands are using retail data to drive not just lower-funnel conversions but also top-of-funnel brand awareness.²⁴ Retailers are evolving into full-funnel media platforms, with CTV providing a crucial entry point for brand influence across the entire customer journey.²⁹

Beyond direct shoppable ads, brand partnerships are becoming increasingly sophisticated. This includes:

- **Contextual and AI-Powered Targeting:** Brands are leveraging AI-driven contextual targeting to align their messages with content tone, genre, and emotional cues, enhancing relevance and engagement.¹⁴ This allows for more effective brand integration without being intrusive.
- **Gamified Brand Experiences:** As seen with interactive quizzes and advergames, brands are creating engaging, memorable experiences that enhance brand recognition and can even offer direct incentives like discount codes.³⁸
- **Cross-Platform Integration:** Advertisers are employing cross-device dashboards to evaluate CTV in conjunction with mobile, desktop, and other digital formats, ensuring a consistent omnichannel experience for consumers.⁷ This allows for seamless retargeting and a unified customer journey, linking CTV ad exposure to online or in-store purchases.²
- **Strategic Content Alignment:** Brands are increasingly aligning their advertising with premium content, including live sports events, which offer high attention environments and significant brand visibility.²³ The ability to programmatically buy

inventory within specific content, such as WNBA games, allows advertisers to reach key target audiences with precision.⁶⁸

These new revenue streams signify a fundamental shift from impressions to transactions, where CTV is transforming into a full-funnel marketing channel. The ability to directly link ad exposure to sales, coupled with enhanced targeting and measurement capabilities, makes CTV an increasingly attractive platform for brands seeking measurable outcomes. The convergence of retail media with CTV, facilitated by advanced data capabilities, allows for personalized storytelling and direct commerce previously confined to digital display and social channels, marking a significant evolution in how advertising drives business results.

Table 2: Top CTV Platforms and Their Ad Offerings

Platform	Key Ad Offerings & Features	Source Snippets
Hulu	Multiple ad tiers (standard, premium ad-free), programmatic buying, interactive ad formats (choose-your-own-ad), contextual ads based on viewer behavior and content. ³¹	31
Roku	Interactive and shoppable TV ads (QR codes, click-to-buy), integration with first-party data for personalization, seamless cross-device retargeting. ³⁰	30
Amazon Fire TV	AI-driven audience segmentation leveraging Amazon's shopping data, ads linked directly to Amazon product pages for immediate purchases. ³¹	31
YouTube	Among the first to invest in smart-TV integrations and CTV ad products, offers 30-second non-skippable CTV ad format in beta,	8

	optimized for brand storytelling. ⁸	
Tubi	Free Ad-Supported Streaming TV (FAST) leader, offers shoppable ad formats and "Tubi Storefronts," uses scene-level metadata for contextual alignment. ²³	23
Pluto TV	Leading FAST platform with 250+ channels, strong in entertainment and news, attracts cost-sensitive consumers. ²³	23
Samsung TV Plus	Built into smart TVs, easy access for global users, boasts 88 million monthly active users, significant growth in viewership. ¹⁴	14

5. Challenges and Future Outlook

5.1 Market Fragmentation and Measurement Complexities

One of the most pressing challenges in the CTV landscape is market fragmentation. The proliferation of numerous streaming platforms, device manufacturers, and content providers has created a highly siloed environment.⁵ Each platform often operates with its own proprietary identifiers and data standards, making it difficult for advertisers to achieve consistent scale and unified cross-platform targeting. This lack of interoperability complicates the use of data, which is the lifeblood of modern marketing, and hinders the ability to deliver advertisements seamlessly across the entire CTV ecosystem.⁶² While the increasing presence of live sports content on CTV helps to build scale, consistent reach across diverse content still remains a hurdle.⁶²

Compounding this fragmentation are significant measurement complexities. The tools and methodologies for measuring CTV ad performance are often nascent and

inconsistent when compared to more mature digital advertising channels.⁵ Many brands continue to rely on last-touch attribution models, which disproportionately credit channels like search and social, thereby undercounting the true impact and contribution of CTV campaigns.²⁸ This creates a skewed understanding of return on investment and can lead to misallocation of marketing budgets. The industry lacks standardized methodologies and consistent definitions for key metrics such as attention, viewability, and outcomes, making it challenging to establish universal benchmarks and accurately compare performance across platforms.⁵ Currently, only a small percentage of global marketers (32%) report measuring their media spending holistically across both digital and traditional channels, highlighting a pervasive disconnect in comprehensive campaign evaluation.¹² Overcoming these challenges will require concerted effort towards greater standardization and the development of more sophisticated, unified measurement solutions.

5.2 Ad Fraud and Evolving Privacy Regulations

The rapid growth and increasing investment in CTV have unfortunately made it an attractive target for malicious actors, leading to significant challenges related to ad fraud and the complexities introduced by evolving privacy regulations.

Ad fraud on CTV is a substantial threat, costing advertisers billions of dollars in 2024 alone.⁶⁴ Malicious actors employ various methods, including artificially inflating ad impressions, manipulating ad engagements (such as clicks or QR code scans), and spoofing users to steal attribution from legitimate sources.⁶⁴ For instance, engagement fraud involves manipulating a real user's interaction to claim revenue, while spoofed users involve bots mimicking human behavior to generate fabricated engagements and installs.⁶⁴ The surge in ad fraud impressions, which increased by 220% in 2024, underscores the urgency of addressing this issue.⁶⁵ While CTV protections exist, their industry-wide adoption has been inconsistent, making it difficult to stay ahead of increasingly complex fraudulent schemes.⁶⁴ Combating ad fraud effectively requires industry-wide acceptance of standards and best practices, with media buyers playing a crucial role in pressuring technology partners to promote a fraud-free ecosystem.⁶⁴

Simultaneously, the CTV ecosystem must navigate a complex and evolving landscape of privacy regulations. Publishers often cite privacy concerns, such as the Video Privacy Protection Act (VPPA), as justification for withholding detailed content-level

metadata from advertisers.⁶³ This lack of transparency, while ostensibly protecting user privacy, frustrates advertisers who seek clarity on where their ads appear and whether they align with brand-safe content.⁶³ Advertisers are not seeking individual user data but rather aggregate, content-level metadata that does not compromise privacy but enables better ad placement and performance.⁶³ The industry is at a crossroads, where publishers must decide whether to proactively increase metadata transparency or risk advertisers resorting to indirect, potentially risky methods to infer content environments, which could erode trust and trigger stricter regulatory scrutiny.⁶³

The broader privacy landscape, including the impending elimination of third-party cookies, the increasing adoption of opt-in consent models, and a shift towards first-party data, significantly impacts programmatic advertising on CTV.³⁰ Advertisers must prioritize user privacy and enhance transparency to build trust while still delivering personalized experiences.³⁰ The growing popularity of data clean rooms is a direct response to these challenges, allowing multiple brands to collaborate on data securely without compromising its confidentiality.³⁰ The future success of CTV relies heavily on balancing innovation with robust infrastructure, stringent privacy safeguards, and effective fraud prevention, ensuring a trustworthy and sustainable advertising environment.

5.3 The Future Trajectory of Non-Traditional Media on CTV

The future trajectory of non-traditional media on CTV is characterized by continued innovation, deeper integration of advanced technologies, and a relentless focus on creating highly personalized and interactive viewer experiences. The trends observed today are expected to accelerate, fundamentally reshaping how consumers engage with their television sets.

One significant area of growth will be the continued expansion of **interactive and shoppable content**. As consumers become more accustomed to engaging directly with their TV screens, the demand for seamless purchasing experiences will intensify.⁴¹ The industry will likely see further refinement of remote-native interaction, making the "add to cart" and direct purchase functionalities even more intuitive and integrated into the viewing flow.⁶ This will solidify CTV's role as a full-funnel marketing channel, capable of driving both brand awareness and direct conversions.²⁹ The convergence of retail media networks with CTV platforms will continue to drive this,

leveraging vast shopping data for hyper-targeted and actionable advertising.²⁹

Gaming on CTV will evolve beyond simple casual games to more sophisticated experiences, likely driven by advancements in cloud gaming and the increasing power of smart TV processors.³⁴ The integration of "advergames" and in-game advertising will become more commonplace, offering brands novel ways to engage audiences within highly immersive environments.³⁷

News consumption will become even more ambient and personalized. AI-driven idle screens will likely become a standard feature, transforming televisions into dynamic, always-on information hubs tailored to individual preferences.⁴⁴ This will further blur the lines between passive entertainment and active information consumption, making news an integral part of the smart home ecosystem.

The proliferation of **new video formats**, particularly short-form content and interactive narratives, will continue. As platforms like TikTok and Instagram refine their CTV offerings, the big screen will increasingly become a destination for snackable, user-generated content.⁴⁷ Interactive storytelling, with branching narratives and viewer-driven plots, will gain traction, offering deeper engagement and redefining traditional linear storytelling.⁵¹

Technologically, **Artificial Intelligence** will remain a core driver. Generative AI is expected to become more sophisticated, enabling the creation of highly realistic and personalized content and ad creatives at scale.³⁰ AI's role in contextual targeting will deepen, providing even more granular insights into content and viewer sentiment, leading to hyper-relevant ad placements without compromising privacy.²⁵

The **monetization landscape** will continue its shift towards hybrid models, offering consumers flexible options and platforms diversified revenue streams.⁶⁶ The growth of FAST channels will persist, driven by consumer demand for free content and the increasing supply of ad-supported inventory.²³

Addressing the existing **challenges of fragmentation, measurement, ad fraud, and privacy** will be paramount for sustained growth. The industry will likely see increased collaboration towards developing unified standards for measurement and data interoperability.⁵ The adoption of identity resolution solutions and data clean rooms will become more critical for secure, privacy-compliant data collaboration and accurate cross-device targeting.³⁰ Robust fraud detection and prevention mechanisms will need to evolve continuously to keep pace with sophisticated fraudulent activities.⁶⁴

In essence, the future of non-traditional media on CTV points towards a highly personalized, interactive, and integrated experience. The television will increasingly function as a central, intelligent hub for diverse forms of media, blurring the lines between entertainment, information, and commerce, driven by a continuous cycle of technological innovation and evolving consumer expectations.

Conclusion: Strategic Implications for the CTV Ecosystem

The analysis presented in this report unequivocally demonstrates that Connected TV (CTV) is no longer merely an extension of linear television but a rapidly evolving, dynamic media ecosystem. Its landscape is fundamentally transforming through the increasing integration and consumption of non-traditional media formats, including games, interactive quizzes, personalized news services, and innovative video content such as short-form, shoppable, and interactive narratives. This profound shift is propelled by a powerful interplay of consumer demand for control, personalization, and cost-effectiveness, alongside relentless technological advancements in AI, interactive advertising, and programmatic capabilities.

The primary implication is that CTV has cemented its status as the new primetime. With high household penetration and a significant share of overall TV viewing time, it has become the dominant screen for content consumption, particularly for younger, digital-first generations. This mass migration of audiences has triggered a substantial shift in advertising investment, with global CTV ad spending projected to reach \$48 billion by 2025. This financial commitment underscores that CTV is now a primary strategy for advertisers, no longer an experimental channel.

The ascent of non-traditional media on CTV signifies a fundamental redefinition of the "video" experience. Gaming is integrating natively into smart TV apps, expanding its reach beyond dedicated consoles and creating new monetization avenues through in-game advertising. Gamification, through interactive quizzes and challenges embedded in advertisements, is transforming passive viewers into active participants, driving significantly higher engagement and providing valuable consumer data. News consumption is evolving into an ambient, personalized utility, with AI-driven idle screens delivering real-time updates tailored to individual preferences, making the television a continuous information hub. Most notably, new video formats are converging content, commerce, and engagement. Shoppable ads, particularly those

leveraging remote-native interaction, are transforming advertising into a direct commerce channel, while interactive narratives are empowering viewers to shape storylines, fostering deeper immersion.

Technological innovations, especially Artificial Intelligence, serve as the intelligence layer enabling this diversification. AI drives hyper-contextual targeting, significantly increasing ad attention by aligning messages with content nuances, and is poised to revolutionize creative generation and optimization. Advancements in interactive ad technologies prioritize the "lean-back" experience, emphasizing remote-native engagement over second-screen interactions like QR codes, which proves crucial for effective audience connection. Programmatic advertising's dominance in CTV transactions offers unprecedented precision and efficiency.

However, the rapid growth of programmatic CTV is not without its complexities. Market fragmentation, stemming from siloed platforms and inconsistent identifiers, poses challenges for achieving scale and unified measurement. Measurement inconsistencies, often relying on outdated attribution models, undercount CTV's true impact. Furthermore, issues of ad fraud and evolving privacy regulations, including the lack of transparent content metadata from publishers, necessitate robust solutions. The industry is responding with identity resolution, data clean rooms, and a concerted push for standardized practices to build trust and fully realize CTV's potential.

Monetization strategies are adapting to these shifts, with the rise of AVOD and FAST channels democratizing CTV content by offering free, ad-supported options that appeal to cost-conscious consumers and expand available ad inventory. Hybrid monetization models, blending SVOD, AVOD, and TVOD, offer strategic flexibility to maximize content value across diverse consumer willingness-to-pay segments. New revenue streams are emerging through shoppable content and sophisticated brand partnerships, leveraging CTV's ability to drive both brand awareness and direct transactions.

In conclusion, the increasing use of diverse media formats on CTV is not merely a trend but a fundamental reshaping of the media landscape. For content creators, this necessitates a strategic shift towards producing interactive, personalized, and multi-format content optimized for the big screen. For advertisers, it demands a holistic, data-driven approach that leverages CTV's unique targeting and measurement capabilities, prioritizes remote-native interactive formats, and embraces programmatic buying while actively engaging in industry efforts to combat fraud and enhance transparency. The future of CTV is one of continuous innovation, where the

television evolves into an intelligent, interactive, and integrated hub for entertainment, information, and commerce, driven by a virtuous cycle of consumer demand and technological advancement.

Works cited

1. About Connected TV in Display & Video 360 - Google Help, accessed on July 6, 2025, <https://support.google.com/displayvideo/answer/9262161?hl=en>
2. What is connected TV? CTV measurement - Adjust, accessed on July 6, 2025, <https://www.adjust.com/glossary/connected-tv-definition/>
3. CTV QUIZ Flashcards - Quizlet, accessed on July 6, 2025, <https://quizlet.com/660480710/ctv-quiz-flash-cards/>
4. CTV Acronym Advertising - Keynes Digital, accessed on July 6, 2025, <https://keynesdigital.com/ctv-acronym-advertising/>
5. CTV & OTT Advertising Guide: 5 Big Challenges Solved | Criteo, accessed on July 6, 2025, <https://www.criteo.com/blog/ctv-ott-video-advertising-guide/>
6. CTV Isn't Just Another Screen—Why Brands Need a New Strategy for Shoppable Ads, accessed on July 6, 2025, <https://www.streamingmedia.com/Articles/News/Online-Video-News/CTV-Isnt-Just-Another-Screen-Why-Brands-Need-a-New-Strategy-for-Shoppable-Ads-170268.aspx>
7. Connected TV Marketing Statistics for 2025 - Southern California News Group, accessed on July 6, 2025, <https://www.socalnewsgroup.com/2025/05/06/connected-tv-marketing-stats-2025/>
8. YouTube rolls out 30 second non-skippable CTV ad format in beta - Swipe Insight, accessed on July 6, 2025, <https://web.swipeinsight.app/posts/youtube-rolls-out-30-second-non-skippable-ctv-ad-format-in-beta-17254>
9. YouTube Launches 30-Second CTV Ad Format - PPC News Feed, accessed on July 6, 2025, <https://ppcnewsfeed.com/ppc-news/2025-06/youtube-launches-30-second-ctv-ad-format/>
10. Connected TV (CTV) Statistics And Trends For 2024 And Beyond - Eskimi, accessed on July 6, 2025, <https://www.eskimi.com/blog/ctv-statistics-and-trends>
11. Connected TV Statistics: Viewership & Growth Trends (2025) - MNTN, accessed on July 6, 2025, <https://mountain.com/blog/connected-tv-statistics/>
12. Connected TV is transforming advertising - Nielsen, accessed on July 6, 2025, <https://www.nielsen.com/insights/2025/connected-tv-transforming-advertising-trends/>
13. How weather-driven video ads enhance viewer engagement in the CTV ecosystem, accessed on July 6, 2025, <https://www.weathercompany.com/blog/how-weather-driven-video-ads-enhance-viewer-engagement-in-the-ctv-ecosystem/>
14. Top CTV Advertising Trends & Predictions from NewFronts 2025 - Lotame,

accessed on July 6, 2025,

<https://www.lotame.com/resources/top-ctv-advertising-trends-predictions-from-newfronts/>

15. The CTV Trends Report, March 2025 | Wurl, accessed on July 6, 2025, <https://www.wurl.com/reports/the-ctv-trends-report-march-2025/>
16. Connected TV Statistics (2025) — Viewership, Growth Trends - Evoca TV, accessed on July 6, 2025, <https://evoca.tv/connected-tv-statistics/>
17. Connected TV market overview: CTV landscape 2024 - Xenoss, accessed on July 6, 2025, <https://xenoss.io/blog/connected-tv-market-statistics>
18. Report: CTV takes 77% of ad views for live programming in Europe | Advanced Television, accessed on July 6, 2025, <https://www.advanced-television.com/2025/03/27/report-ctv-takes-77-of-ad-views-for-live-programming-in-europe/>
19. CTV growth brings opportunities for the media – and audiences - Digital Content Next, accessed on July 6, 2025, <https://digitalcontentnext.org/blog/2025/04/14/ctv-growth-brings-opportunities-for-the-media-and-audiences/>
20. Revolutionizing Media & Entertainment Industry: The Role of Smart TV Integration, accessed on July 6, 2025, <https://cynoteck.com/blog-post/revolutionizing-media-entertainment-industry-the-role-of-smart-tv-integration/>
21. Riding the Wave of Shifting Consumer Behaviors: - Vubiquity, accessed on July 6, 2025, <https://www.vubiquity.com/riding-the-wave-of-shifting-consumer-behaviors-how-companies-can-stand-out-in-the-evolving-media-industry/>
22. What is Connected TV (CTV) Advertising? A Beginner's Guide - AdRoll, accessed on July 6, 2025, <https://www.adroll.com/blog/what-is-connected-tv-ctv-advertising-a-beginner-s-guide>
23. What 2024 Taught Us About CTV Advertising, accessed on July 6, 2025, <https://advertisingweek.com/what-2024-taught-us-about-ctv-advertising/>
24. 4 CTV Trends Taking Shape in 2025 - Ocean Media, accessed on July 6, 2025, <https://www.oceanmediainc.com/2025-ctv-trends/>
25. Maximizing Programmatic CTV in 2025 - Basis Technologies, accessed on July 6, 2025, <https://basis.com/blog/maximizing-programmatic-ctv-in-2025>
26. What Is CTV & Why Is It the Future of Programmatic Advertising? - Bannerflow, accessed on July 6, 2025, <https://www.bannerflow.com/blog/what-is-ctv-why-is-it-the-future-of-programmatic-advertising/>
27. CTV Marketing Strategy 2025: Complete Guide to Connected TV Success - Simulmedia, accessed on July 6, 2025, <https://www.simulmedia.com/blog/crafting-a-winning-ctv-advertising-strategy-for-targeting-specific-audiences>
28. The Comprehensive Guide to CTV Advertising - MNTN Research, accessed on July 6, 2025, <https://research.mountain.com/trends/what-is-ctv-advertising/>

29. How CTV Advertising Is Transforming Retail Media - Lemonlight, accessed on July 6, 2025,
<https://www.lemonlight.com/blog/how-ctv-advertising-is-transforming-retail-media/>
30. The Next Big CTV Trends: What Advertisers Need To Know To Stay Ahead Of The Curve, accessed on July 6, 2025,
<https://www.forbes.com/councils/forbestechcouncil/2025/05/16/the-next-big-ctv-trends-what-advertisers-need-to-know-to-stay-ahead-of-the-curve/>
31. What Is CTV Advertising? How Brands are Using Hulu, Roku & More - inBeat Agency, accessed on July 6, 2025, <https://inbeat.agency/blog/ctv-advertising>
32. The Rise of Connected TV(CTV) in Europe - Statista+, accessed on July 6, 2025,
<https://www.statistaplus.com/en/insights/connected-tv-strong-growth>
33. Connected TV Market Size & Share | Industry Report, 2030 - Grand View Research, accessed on July 6, 2025,
<https://www.grandviewresearch.com/industry-analysis/connected-tv-market-report>
34. How To Play Games On Google TV with Google Play Store (100% Works), accessed on July 6, 2025,
<https://www.youtube.com/watch?v=eiOE18hM3RM&vl=ja>
35. Games for Android TV - Google Play, accessed on July 6, 2025,
https://play.google.com/store/apps/collection/promotion_3000e24_androidtv_games_all
36. Play.Works is the #1 provider of CTV Games and Original TV Channels., accessed on July 6, 2025, <https://play.works/>
37. Samsung Ads Spotlights the Future of CTV: Key Trends Driving Advertising Innovation in 2025, accessed on July 6, 2025,
<https://news.samsung.com/us/samsung-ads-spotlights-future-of-ctv-key-trends-driving-advertising-innovation-2025/>
38. Interactive CTV Ads: Key CTV Formats for Engagement with Customer - Teqblaze, accessed on July 6, 2025, <https://teqblaze.com/blog/interactive-ctv-ads>
39. Interactive CTV Ads | What They Are & Why They Matter for CTV - Wurl, accessed on July 6, 2025, <https://www.wurl.com/glossary/interactive-ctv-ads/>
40. Forget Static: CTV Levels Up With New Ad Formats - AdImpact, accessed on July 6, 2025,
<https://adimpact.com/blogs/forget-static-ctv-levels-up-with-new-ad-formats>
41. The Evolution of Shopping in CTV Advertising - BrightLine, accessed on July 6, 2025, <https://www.brightline.tv/blog/lgvtm3ucak9thfy0c6q5rb3qfuzgl6>
42. NBC News: Breaking News & Live - Apps on Google Play, accessed on July 6, 2025, <https://play.google.com/store/apps/details?id=com.zumobi.msnbc>
43. Download the PBS App for Free, accessed on July 6, 2025,
<https://www.pbs.org/pbs-app/>
44. Smart TVs: Transform Idle Screens into Content Hubs - Glance AI, accessed on July 6, 2025,
<https://glance.com/us/articles/turning-your-smart-tv-idle-screen-into-a-hub-of-live-updates-and-trending-content>

45. Maximize Ad Revenue Across CTV Platforms - Aniview, accessed on July 6, 2025, <https://aniview.com/maximize-ad-revenue-across-ctv-platforms/>
46. New CTV Options Point To A Different Path For Advertising - TV News Check, accessed on July 6, 2025, <https://tvnewscheck.com/business/article/new-ctv-options-point-to-a-different-path-for-advertising/>
47. Why Instagram and TikTok Are Bringing Short-Form Video to Your TV, accessed on July 6, 2025, <https://influencermarketinghub.com/why-instagram-and-tiktok-are-bringing-short-form-video-to-your-tv/>
48. Benefits of Shoppable TV Ads (2025) - Shopify, accessed on July 6, 2025, <https://www.shopify.com/blog/shoppable-tv>
49. The 2025 State of CTV in Retail Media - Kenshoo, accessed on July 6, 2025, <https://skai.io/blog/ctv-in-retail-media/>
50. Interactive television - Wikipedia, accessed on July 6, 2025, https://en.wikipedia.org/wiki/Interactive_television
51. Future of Storytelling: Next-Gen Interactive Narratives Explained - Clixie.ai, accessed on July 6, 2025, <https://www.clixie.ai/blog/the-evolution-of-storytelling-how-interactive-videos-are-shaping-the-future>
52. Choose Your Own Adventure - Wikipedia, accessed on July 6, 2025, https://en.wikipedia.org/wiki/Choose_Your_Own_Adventure
53. 'Nothing out there like it': Choose your own adventure musical debuting in Calgary, accessed on July 6, 2025, <https://www.ctvnews.ca/calgary/article/nothing-out-there-like-it-choose-your-own-adventure-musical-debuting-in-calgary/>
54. Best Storytelling Apps for Android in 2025 | Top Picks for Kids & Adults - Arramton, accessed on July 6, 2025, <https://arramton.com/blogs/storytelling-apps-for-android>
55. Netflix Upfront 2025: The Center of Attention, accessed on July 6, 2025, <https://about.netflix.com/news/netflix-upfront-2025-the-center-of-attention>
56. Amazon Interactive Video Service - AWS, accessed on July 6, 2025, <https://aws.amazon.com/ivs/>
57. Amazon Interactive Video Service Features - AWS, accessed on July 6, 2025, <https://aws.amazon.com/ivs/features/>
58. CTV (New) - Nova, accessed on July 6, 2025, <https://www.createwithnova.com/novactv>
59. Research: TVs becoming more than just for TV viewing | Advanced Television, accessed on July 6, 2025, <https://www.advanced-television.com/2025/07/02/research-tvs-becoming-more-than-just-for-tv-viewing/>
60. What's Really Powering Ad Tech in 2025? Insights from Women at the Forefront, accessed on July 6, 2025, <https://www.exchangewire.com/blog/2025/03/07/whats-really-powering-ad-tech-in-2025-insights-from-women-at-the-forefront/>

61. CTV Has A Fragmentation Problem: These People May Have A Solution - TVREV, accessed on July 6, 2025,
<https://www.tvrev.com/news/ctv-has-a-fragmentation-problem-these-people-may-have-a-solution>
62. Digging into CTV's 3 Biggest Challenges in 2025 - Streaming Media, accessed on July 6, 2025,
<https://www.streamingmedia.com/Articles/Post/Blog/Digging-into-CTVs-3-Biggest-Challenges-in-2025-168421.aspx>
63. Transparency or Backdoors? The Battle Over CTV Metadata | TV Tech - TVTechnology, accessed on July 6, 2025,
<https://www.tvtechnology.com/opinion/transparency-or-backdoors-the-battle-over-ctv-metadata>
64. What is CTV fraud? - HUMAN Security, accessed on July 6, 2025,
<https://www.humansecurity.com/learn/topics/what-is-ctv-fraud/>
65. A Historical Overview of the CTV Industry - Simulmedia, accessed on July 6, 2025,
<https://www.simulmedia.com/blog/a-historical-overview-of-the-ctv-industry>
66. Innovative Hybrid and FAST Monetization Models in OTT - UniqCast, accessed on July 6, 2025,
<https://www.uniqcast.com/ott-iptv/fast-streaming-monetization-models>
67. Video Monetization Models — Finding the Right Fit for Your Content - TargetVideo, accessed on July 6, 2025,
<https://target-video.com/video-monetization-models/>
68. Advertisers Achieve New Levels of Transparency and Scale with CTV - Nielsen, accessed on July 6, 2025,
<https://www.nielsen.com/news-center/2025/advertisers-achieve-new-levels-of-transparency-and-scale-with-ctv/>