Deloitte



Unlocking the full potential of NextGen TV broadcasting Unlocking the full potential of NextGen TV broadcasting

What's inside

Introduction	3
Potential benefits of accelerating 3.0	
Roadblocks to an accelerated transition	6
Call to action	7
How Deloitte can help	
Authors	9

Introduction



The promise of next-generation digital broadcasting, enabled by the ATSC 3.0 (Advanced Television Standards Committee 3.0, or "3.0") broadcast standard, is within reach but has not yet been fully realized. Compared to ATSC 1.0 ("1.0"), 3.0 is a transformative leap forward, offering an enriched viewer experience, greater mobility, and seamless compatibility with internet protocol (IP)-based networks. And yet, despite its potential, the full-scale deployment and adoption of 3.0 remains stalled by key obstacles such as the requirement for ongoing support of the older, less capable ATSC 1.0 standard. Broadcasters, technology partners, device manufacturers, and policymakers can work together to address these obstacles and unlock the full benefits of ATSC 3.0 broadcasting. Deloitte's 2022 publication of the ATSC 3.0 white paper¹ outlined the most important technological advances in 3.0, the potential benefits to consumers and businesses through innovative use cases, and the implications for policymakers and technology firms. This paper presents the potential benefits that a faster transition from 1.0 to 3.0 could bring to US consumers, businesses, and the broader public, and offers an actionable roadmap to achieve that end.

Potential benefits of accelerating 3.0

A faster transition to 3.0 fuels innovation, enhances consumer experiences, and strengthens public safety

Enhancements with the 3.0 standard

The introduction of 1.0 represented the first digital television standard supporting high-definition television, theater quality audio, and multiple subchannels (multicasting). Although these capabilities were already widely supported by cable operators at the time, they were unavailable to anyone who could not receive or afford subscriptions.

The 3.0 standard dramatically improves upon the 1.0 standard to extend benefits beyond traditional video broadcast. With the ability to transmit IP-based data over large geographic areas, commercial enterprises and public-sector organizations can leverage existing TV broadcast signals and networks to distribute data to the masses. The core technology offers improved receivability versus 1.0 and allows broadcasters to deliver new use cases—from more efficient overthe-air (OTA) software updates for millions of vehicles to public safety features like extremely accurate and highly resilient position and timing information for enhanced location services.

Full 3.0 deployment provides superior consumer experiences and connectivity

Enhancing the viewer experience

The new standard provides a more immersive and reliable broadcast for an estimated 125 million TV households.² Like premium subscription-based streaming services, ATSC 3.0 allows personalization and interactivity with broadcast television or internet-delivered programming. Households with access to ATSC 3.0 signals can watch on-demand programming from local stations, receive hyperlocal weather forecasts, and even play games on their 3.0-enabled televisions. Additionally, broadcasters can deliver exceptional audio services, including services that benefit deaf listeners, and 4K ultra-high definition (UHD) and high definition-high dynamic range (HD-HDR) video content. For every consumer within receiving range of a 3.0 signal, their television can become a hub of personalized and essential local and regional services and, with the expansive reach of broadcast signals, households in even the most far-reaching rural settings could access theater quality programming. As an example of the interactivity 3.0 provides, viewers could customize settings when watching their favorite pro baseball team, choose the camera angle, the broadcast language, and a myriad of statistics to track for favorite players in their fantasy league.

Connecting underserved households

The transmission of IP-based data through 3.0 broadcast networks offers a complement to existing low-capacity IP networks and can enhance access to broadband services for underserved and low-income communities. Further, because it shares a common transport layer with 5G, the ATSC 3.0 standard is inherently compatible with cellular and broadband networks. This allows for broadcast-broadband convergence and enables offload of highbandwidth broadcast video and data files from potentially congested cellular and broadband networks. The one-to-many nature of ATSC 3.0 broadcast enables pre-positioning of content at the edge and can reduce latency for broadband users accessing the same content.

Accelerating 3.0 transition for consumer benefits

To enable these consumer benefits, the transition to 3.0 must be accelerated and broadcasters must be able to completely convert their 1.0 transmissions to 3.0. Without nationwide coverage, a strong device ecosystem, and incentives, many broadcast consumers will remain tethered to ATSC 1.0. Consumer electronics companies will not invest in new devices and services, broadcasters will be unable to expand coverage, and consumers will have less reason to switch. Broadcast-dependent viewers will be left behind as other video services continue to evolve.

Characteristic	1.0 limitation	3.0 enhancement
Viewership experience	HD video	4K UHD, HD-HDR, and interactive programming
Transmission capabilities	Video and audio files	Any type of IP-based data (e.g. text, audio, video, software)
Receivability	Fixed reception	Fixed and mobile reception

Accelerating the 3.0 transition creates compelling solutions for businesses

With IP data transmissions via ATSC 3.0, broadcasters can serve businesses needing one-to-many broadcast distribution. Any business with a need to send the same data to many endpoints can now be served with broadcast data efficiency—a single transmission capable of reaching an infinite number of endpoints within a reception area. Industries like automotive, heavy machinery, and content delivery networks can enhance data delivery efficiency, reduce operational costs, and increase content reach.

For example, an automotive manufacturer may issue an OTA update via ATSC 3.0 broadcast to address a safety recall for a fleet of vehicles. By using a multicast form of broadcast data distribution, automotive manufacturers can expedite the recall process, reduce data distribution costs, and improve compliance with National Highway Traffic Safety Administration recall requirements.

However, creating compelling broadcast data distribution services requires a full transition to 3.0 to provide businesses adopting broadcast data services nationwide coverage and fast download speeds. Currently, broadcasters must dedicate spectrum to legacy 1.0 services, hindering the full deployment of ATSC 3.0 infrastructure and deterring businesses from investing in 3.0 product integration.

Public safety and security is more effective with 3.0

Beyond consumer and business benefits, accelerating 3.0 adoption benefits our broader society with more reliable and secure public safety services. The public safety benefits of 3.0 are crucial as increasing natural disasters and extreme weather events, like wildfires and hurricanes, damage telecom networks and reduce the government's ability to share lifesaving information. Further, if 3.0 receiver chips were incorporated in cell phones, tablets, and other portable devices, the ability to reach affected citizens with local emergency information would be exponentially improved while addressing the potential for increased security threats from foreign adversaries.

Superior alerting and communication capabilities

Given redundant towers and signals in the same markets, broadcast infrastructure is inherently resilient, allowing critical information to be delivered without disruption. Unlike 1.0 alerts, 3.0 alerts can include multimedia and be served regionally and locally with multilingual options, improving the quality and accessibility of critical alerts.

Further, the new standard allows for improved alert targeting and the "wake up" of 3.0-enabled devices, enabling critical safety information to reach the specific public audience that needs it. With these enhanced capabilities, broadcasters can augment alert, rescue, and relief efforts even when other broadband and cellular networks are disabled.

More resilient GPS with Broadcast Positioning System

GPS, while widely used, is vulnerable to jamming and spoofing from bad actors or foreign adversaries. Full ATSC 3.0 deployment can make the nation's aging GPS network more resilient with a Broadcast Positioning System (BPS). A BPS can complement satellite GPS to transmit positioning, navigation, and timing (PNT) data necessary for the operation of critical infrastructure such as the energy grid, financial markets, transportation systems, trucking fleets, and autonomous vehicles.

A BPS requires triangulation among three non-collocated broadcast stations to provide location data, as opposed to just timing data. In today's interim deployment of 3.0, a BPS would not be feasible. Due to existing regulatory limitations, broadcasters have had to deploy a collocation strategy that distributes all 3.0 services from a single broadcast location in a market. This strategy minimizes capital investment to convert markets during the voluntary transition period but is insufficient for BPS. A mandated sunset of the 1.0 standard would enable the necessary 3.0 signal coverage to effectuate a BPS.

Roadblocks to an accelerated transition

The transition to 3.0 will likely remain slow and be limited without a 1.0 sunset mandate

3.0 transition progress

Since 3.0 adoption in 2017, broadcasters have voluntarily been transitioning to the new standard. As a result, only 113 of more than 1,700 full-power US TV stations are broadcasting with 3.0.³ To accelerate the 3.0 transition and recognize the full benefits for consumers, businesses, and the public sector, several key factors must be addressed, namely the end of the 1.0 simulcast requirement, development and commercialization of more 3.0-enabled devices, and a mandated transition to 3.0 for all broadcasters.

Simulcast requirements have stalled nationwide conversion

The FCC's simulcast rule⁴ mandates that broadcasters must continue to transmit 1.0 programming while transmitting 3.0 services. With no new spectrum allocated for 3.0, this has forced broadcasters to perform a complex and resource-intensive balancing act, collaborating market by market to transition services to 3.0 while maintaining continuity of 1.0 services. During this voluntary transition period, there is typically only one converted station, the "Lighthouse," which hosts multiple video services to comply with the simulcast mandate.

The Lighthouse collaborations have been a stopgap measure to facilitate deployment of the new standard in many US markets. However, this approach fails to provide sufficient capacity for other beneficial 3.0 services and hinders deployment of the new standard in smaller markets where broadcaster collaboration to simulcast services in both standards is not feasible. A full 3.0 deployment would enable each TV station to continue delivering its existing video programming and have capacity for additional video services, a BPS, enhanced alerting, and other new use cases.

The industry is at an impasse now, and voluntary conversion has slowed. The simulcast rule has limited broadcasters' ability to fully demonstrate the value they can bring to the market with 3.0, and the technology's potential remains largely untapped, leaving both broadcasters and the customers they serve unable to experience the full benefits of the new standard.

Technology partners and device manufacturers are reluctant to fully invest in and adopt 3.0

The path to a successful 3.0 transition hinges on collaboration between broadcasters, technology firms, and potential 3.0 customers to invest in and adopt devices that enable reception.

Consumer electronics (CE) manufacturers that offer NextGen TVs, set-top boxes, and dongles with embedded ATSC 3.0 tuners are a primary ecosystem stakeholder. More than 14.6 million⁵ ATSC 3.0-capable devices have been sold in the United States to date. However, due to patent costs and regulatory uncertainty of a 1.0 sunset, most CEs include 3.0 tuners in only a limited selection of high-end TV models. Without the clarity of a 1.0 sunset, it is unlikely CEs will invest in a mass market integration of the technology.

Cable providers are also affected by a potential mandated ATSC 3.0 transition. To continue retransmitting broadcast television programming, cable providers would be required to upgrade their headend equipment to support retransmission of enriched 3.0 programming. This investment in their core systems will help boost capacity to handle the higher data rates of 3.0 content. However, cable companies operate in a highly competitive environment, and investment in these upgrades may be deprioritized without clear regulatory guidance on a full transition, potentially stalling the widespread adoption and market acceptance of 3.0 technology.

The uncertainty around a full 3.0 transition creates headwinds for adoption outside of the traditional TV ecosystem as well. Delivering data distribution solutions for businesses will require connectivity that is fast, reliable, and nationwide. Without a more certain future, companies that can benefit from 3.0 services will likely remain hesitant to boost investments to incorporate the technology into their products.

Call to action

Broadcasters, their technology partners, and regulators should consider working together to realize the full benefits of ATSC 3.0

Call to action for broadcasters

To accelerate the ATSC 3.0 transition and realize the benefits across all stakeholders, broadcasters should consider upgrading to the required broadcast infrastructure in preparation for a complete transition to 3.0 by a certain date. This commitment from the industry will likely send the right signals to manufacturers and consumers alike that it intends to deliver on the promise of 3.0.

Critical to the success of full adoption will be increasing devices in the market beginning with TVs and extending to new devices to receive data distribution services (e.g., home gateways, vehicles, mobile phones). Broadcasters can work with CE manufacturers to define the market opportunity and drive consumer awareness of 3.0 benefits and device availability.

Call to action for technology partners and device manufacturers

To fully unlock the benefits of ATSC 3.0 for consumers, device manufacturers should accelerate adoption across a broader range of products. While many have begun integrating 3.0 receivers into high-end television models, universal adoption across all price points is essential to driving widespread consumer access and market penetration. Manufacturers should consider prioritizing the addition of ATSC 3.0 tuners into affordable TV models, set-top boxes, and streaming dongles, to provide cost-effective options for all consumers. Beyond traditional TV sets, expanding 3.0 compatibility into home gateways, automotive systems, Internet of Things devices, and mobile phones will help open new markets and use cases, leveraging broadcast IP networks for seamless data distribution.

Collaboration with broadcasters is critical to identifying consumer data needs, optimizing service offerings, and maximizing the value of 3.0-enabled devices. By working together, technology partners can shape the future of broadcasting, enhance content delivery, and create new revenue opportunities—all while improving the user experience and expanding connectivity.

Call to action for regulators

To provide the clarity required for ecosystem stakeholders to invest confidently in the transition to 3.0, the FCC can issue clear and decisive regulatory guidance on the date of a mandated sunset of ATSC 1.0. Establishing a firm date to sunset 1.0 can enable stakeholders across the ecosystem to prepare for adoption and compliance and begin the complex task of spectrum transition and technology implementation.

How Deloitte can help

Sunsetting a legacy technology and managing the transition to the next generation requires careful coordination across multiple stakeholders, including broadcasters, suppliers, consumers, and government. Without proper stakeholder engagement and oversight, technology transitions may risk running over budget, exceeding prescribed timelines, and failing to generate benefits to the consumer, businesses, and the American people.

End users (e.g., consumers, businesses, public agencies) need to be informed of the transition requirements and timelines to prevent service disruption. They should be able to easily gain real-time access to technical support for transitioning their equipment and accessing new technology. Moreover, stakeholders across the ecosystem, including broadcasters that often share markets, customers, and assets, must stay highly coordinated throughout the transition period. This level of coordination requires constant communication and flawless automation. Further, financial oversight, including analytics, tracking, and forensic expertise, often enabled by Al tools, is essential for oversight and compliance of public and private transition expenses to reduce potential for waste, fraud, and abuse. Deloitte's Media Solutions and Government and Public Sector (GPS) practices have decades of experience with broadcasters and government agencies to help facilitate complex technology transitions. For example, Deloitte regularly works with government agencies to advise on grant policy and incentives for technology advancement. We also collaborate with government agencies to reduce costs of grants management by automating processes for compliance, financial oversight, and benefits tracking.

Deloitte's relationships across the ecosystem can facilitate collaboration required to efficiently execute the transition. This includes coordination between broadcasters, consumer electronics companies, and distribution channels to help make the equipment necessary for the technology transition affordable and available.

Deloitte has a long history in helping government and private industry coordinate between the multiple stakeholders to ensure a smooth technology and spectrum transition. A Deloitte-led program can engage and equip stakeholders across the ecosystem with the knowledge and tools necessary to navigate the transition effort and to plan for implementation of the 3.0 standard that benefits consumers, businesses, and the broader public alike.

Authors

Dan Littmann

Principal Deloitte Consulting LLP <u>dlittmann@deloitte.com</u> +1 847 867 5006

Carleigh Joiner

Manager Deloitte Consulting LLP <u>cjoiner@deloitte.com</u> +1 213 247 5374

Brian Greenberg Principal Deloitte Consulting LLP bgreenberg@deloitte.com +1 571 882 5776

Bryce Cosgrove Manager Deloitte Consulting LLP bcosgrove@deloitte.com +1 720 948 8279 Allan V. Cook Managing Director Deloitte Consulting LLP <u>allcook@deloitte.com</u> +1 213 688 5360

Mark Stang Senior Consultant

Deloitte Consulting LLP mastang@deloitte.com +1 651 627 3366

Endnotes

- 1. Allan Cook et al., ATSC 3.0 white paper, Deloitte, 2022.
- 2. S&P Global Market Intelligence Kagan, US TV station-level households and populations as of December 6, 2024, accessed December 2024.
- 3. Federal Communications Commission (FCC), "TVStudy Interference Analysis Software," 2024, accessed March 2025.
- 4. Federal Communications Commission (FCC), "FCC adopts ATSC 3.0 multicast licensing and extends sunset dates," June 23, 2023.
- 5. Consumer Technology Association (CTA), Forecast of NextGen TV and ATSC 3.0 dongle device shipments, January 2025. This is a forecast published by CTA every six months to its members. The numbers referenced are from the last release in January 2025.



Deloitte

This publication contains general information and predictions only and Deloitte is not, by means of this publication, rendering accounting, business, financial, investment, legal, tax, or other professional advice or services. This publication is not a substitute for such professional advice or services, nor should it be used as a basis for any decision or action that may affect your business. Before making any decision or taking any action that may affect your business, you should consult a qualified professional adviser. Deloitte shall not be responsible for any loss sustained by any person who relies on this publication.

About Deloitte

Deloitte refers to one or more of Deloitte Touche Tohmatsu Limited, a UK private company limited by guarantee ("DTTL"), its network of member firms, and their related entities. DTTL and each of its member firms are legally separate and independent entities. DTTL (also referred to as "Deloitte Global") does not provide services to clients. In the United States, Deloitte refers to one or more of the US member firms of DTTL, their related entities that operate using the "Deloitte" name in the United States, and their respective affiliates. Certain services may not be available to attest clients under the rules and regulations of public accounting. Please see www.deloitte.com/about to learn more about our global network of member firms.

Copyright © 2025 Deloitte Development LLC. All rights reserved. 10803305 $\,$