JOURNAL

FIFA WORLD CUP 26

LIFTING THE LID ON BREAKTHROUGH TECHNOLOGIES AT THE PLANET'S BIGGEST SPORTING EVENT

IBC SPECIAL EDITION

FIFA World Cup 2026

iamt™
connect | support | inform
Trusted by the industry. Driven by members.

Index

Platinum members

Grass Valley HPE mistv Synamedia

Platinum partner

المدينة الإعلامية Media City Qatar قطر

IAMT is a trading name of IABM.
IABM is a company limited by guarantee
105 High Street, Worcester WR1 2HW
Email: info@theiamt.org
Web: www.theiamt.org

Chair of the Board – Josh Arensberg
Chief Executive Officer – Saleha Williams
Journal Editor – Roger Thornton
IAMT Investments Ltd Chair – Lucinda Meek
For advertising opportunities please contact paul.young@theiamt.org

IAMT Team
Emma Labrador Becker, Ana-Claire Bernardes, Nigel Burtt, Chris Evans, Pavleta Kakova, Michelle Kelly, Riikka Koponen, Lucinda Meek, Elliot Milner, Stan Moote, Olga Nevinchana, Grace Pugh, Stuart Ray, Danny Steed, Paul Treleaven, Betty Wilson, Paul Young.

World Cup 2026
Special IAMT Journal Edition

The FIFA World Cup is more than a football tournament; it is one of the world's largest live-production challenges. This special edition Journal highlights how many **IAMT members** helped power this massive global undertaking.

Saleha Williams
CEO, IAMT

From cloud workflows and IP networking to advanced AI automation and high-density signal routing, member technologies unify broadcasters, production teams, and media providers across multiple countries, time zones, languages, and platforms to deliver a seamless multi-screen viewing experience worldwide.

104 games across 39 days spanning three countries. An audience of billions watching in every country on earth. Any problem, error or mistake would be exposed on the biggest stage, damaging reputations and having severe financial consequences for some.

It all required careful planning and incredible innovation, brilliantly led by many IAMT members.

Huge Scale

The challenges were huge. As **Appear's Andy Rayner** puts it, "It compressed many of the challenges facing modern live production into one event: more venues, more feeds, more remote collaboration, growing demand for Ultra HD, HDR and digital streaming, and no tolerance for interruption."

The scale is mind-boggling. For example, **LiveU** served as the IP backbone and remote cloud production (REMI) ecosystem for coverage to customers in 45 countries. This involved a record 1,700 portable field units, 31,000 live transmissions and 17,000 broadcast hours, representing 695TB of data.

Massive Connectivity

To support every FIFA broadcast across all 16 stadiums, **Verizon** built the dedicated digital highway powering the broadcast from camera lenses to homes, adding 80,000 miles of fiber. Verizon delivered audio and video feeds and real-time match data to the International Broadcasting Center by centralizing FIFA's broadcasting operations through high-capacity fiber. A central part of the deployment was to ensure ultra-low latency to support on-field applications and to guarantee a seamless, immersive fan experience at the stadiums through Private 5G, complemented with Fixed Wireless Access (FWA) and Wi-Fi ecosystem.

Keeping it live

With many viewers receiving coverage via streaming, latency was also a critical issue, not only so that viewers don't get notifications on social media before the action unfolds on screen, but also to enable interactive features to increase engagement. **Rohde & Schwarz's** new DTV+ infrastructure in Brazil also unlocked interactivity for over the air transmissions.

New presentation techniques designer to engage viewers further were also in abundance. As **Vizrt's Rohit Nagarajan** notes, "Data-driven graphics, augmented reality, virtual studios and remote production were no longer simply additional features. They became central to helping audiences understand the game and feel closer to the tournament."

Advertising innovation

Hydration breaks may have been necessary for the players in many matches, but they were also a boon for advertisers. **Yospace** reports that turnaway from viewers was only 0.4% during these breaks – compared with 16.8% during half time breaks, though Witbe's live monitoring picked up some problems that will need to unpicked in future, notes **Witbe's Yoann Hinard**: "The ad break has stopped being the safest moment in a broadcast and become a live production event with its own failure modes: transitions in and out, regional variants, audio handback, device-specific rendering. None of that is visible from the delivery stack alone." As **Yospace's Paul Davies** notes, "Despite the records set by this World Cup, the full potential of advertising around major live sporting events is yet to be realized."

The following articles lift the lid on the many breakthrough technologies IAMT members supplied to power the capture, analysis, presentation and distribution of the planet's biggest sporting event.

Enjoy!

Saleha Williams – CEO, IAMT

LiveU Delivers Record-Breaking LIQ and Cloud Service Deployment for World Football Championship 2026

LiveU deploys a record number of 5G and LIQ field units, powering multi-nation remote cloud production workflows across the US, Mexico, and Canada.

LiveU has set historic performance records during the 2026 World Football Championship. Spanning six weeks, 16 stadiums in three host nations, and 104 matches, the operation represents the largest and most complex broadcast footprint in LiveU's history. LiveU served as the IP backbone and remote cloud production (REMI) ecosystem for a significant share of non rights and unilateral coverage across Mexico, the United States, and Canada.

To meet this unprecedented demand, broadcasters, production houses, football federations, and digital content creators – including independent creators and IRL streamers covering the event on their own channels – as well as public safety institutions, deployed a record **1,700 portable field units**. The operation supported **31,000 live transmissions and 17,000 broadcast hours for customers in 45 countries, representing 695TB of data**.

Coverage spanned pre-match briefings, official training sessions, press conferences, in-stadium editorial positions, fan zones, team hotels and IRL creator streams from city centers and public viewing areas. Leading broadcasters also deployed LiveU technology across additional camera positions to capture unilateral feeds for richer multi-angle coverage. The range reflects a fundamental shift in how broadcasters of all sizes and independent creators are now building distributed, IP-first workflows around a major tournament.

The multi-site broadcast effort was anchored by the company's LU800 multi-camera field unit and intelligent production unit, LU900Q – both powered by the smart routing capabilities of LiveU IQ (LIQ) AI-driven connectivity technology. The combination enabled ultra-low-latency, 4K-ready content to be delivered directly to millions of viewers worldwide.

"The sheer scale of this cross-border deployment reflects a joint collaboration with our global customers and partners to push the boundaries of live sports productions," said Gideon Gilboa, Chief Business Officer and GM Americas at LiveU. "We didn't just supply equipment; we worked in partnership with our customers in advance to design and refine workflows to meet their operational needs and budgets. By shifting heavy infrastructure to the cloud, our customers could expand their tournament footprint, capture more angles, and maximize ROI without compromising on broadcast quality. LIQ and the LU900Q both demonstrated LiveU's focus on robust, high-performance field connectivity, helping broadcasters maintain reliable live transmissions in demanding sports production environments."

As one of Colombia's leading television news organizations, Noticias Caracol relied on LiveU's IP-video technology to help ensure viewers received timely, uninterrupted coverage throughout the event. Mauro Milano, sports anchor for Noticias Caracol, shared his experience using the LiveU LU800 to deliver live broadcasts from host cities in Kansas City, Dallas, Atlanta, Miami, and New York/New Jersey.

"Dependable connectivity is essential for uninterrupted television coverage," said Milano. "The LU800 worked perfectly everywhere in the country. We haven't had a single problem."

Built on the LU800 and LIQ

The tournament's field coverage relied predominantly on LiveU's LU800 portable field units running LiveU IQ (LIQ™), LiveU's intelligent connectivity solution that analyzes real-time and historical network data to optimize every transmission. LIQ dynamically prioritized and load-balanced cellular connections through predictive network analysis – critical resiliency in crowded stadium environments.

On average, **broadcasters leveraging LIQ during the tournament achieved up to 35% higher average bitrates** and maintained near-zero packet loss, even within those highly congested environments. LIQ's performance in the US market made a measurable difference for broadcasters operating across multiple cities and time zones. LIQ was complemented by LiveU Mobile Data, LiveU's cellular connectivity offering, connecting teams to multiple networks. All LiveU rental units came with Mobile Data as default, saving international teams from the hassle of sourcing local SIM cards in the US.

"When it was announced that Boston would be a host city, we knew this event would be massive," said Adam Liberatore, Chief Photographer, WFXT Boston 25 News. "As rights holders, we immediately planned for a collaboration with LiveU to assist with giving us the bandwidth necessary to put on a flawless in-stadium newscast. The LU800 helped turn this platform into a mobile newsroom with one unit handling up to four video sources. The LU800 and LIQ connectivity helped our lean production crew make this global event memorable for our viewers."

Centralizing the Feed, Localizing the Story: The LiveU EcoSystem

Field transmission was only half of the story. Broadcasters heavily relied on the LiveU EcoSystem, a unified suite of cloud-native tools spanning the entire live production workflow, to execute sophisticated REMI workflows without sending massive, expensive production trucks to every venue. **LiveU Central** gave operations teams a single point of visibility across every unit in the field. **LiveU Ingest** automated file-based recording and metadata tagging for rapid highlights and **LiveU Nexus** handled ingest, conversion, and distribution of live streams from traditional encoders to social media. **LiveU Matrix** routed live camera feeds to global newsrooms, production hubs, and distribution partners.

With deployments built around remote production, it reduced the need for massive on-site crews, for example cutting travelling headcount by around 40%.

A Cross-Border Operation of Unprecedented Scale

The team was on the ground in all key locations. When urgent deployments arose, LiveU teams bypassed shipping entirely -- hand-delivering equipment directly to stadiums and production hubs to keep broadcasters on air. LiveU's partnership with One Media was central to managing that complexity in Mexico, where close to 200 systems were coordinated, staged, and tested more than a month before the opening match. The guiding principle was simple: the operational complexity was LiveU's to absorb, not the customers. Every client – whether running a full REMI workflow from their home country or streaming from a pop-up fan zone position – could focus entirely on editorial output.

"The 2026 World Football Championship was a true proving ground for modern sports broadcasting, demanding unmatched logistical agility and flawless network resilience," added Gilboa. "By combining our purpose-built hardware, open architecture, and global footprint with AI-driven cloud orchestration, we showed that broadcasters don't need a heavy physical presence on-site to deliver world-class coverage. We're already deep in preparations for 2030 – Spain, Portugal, Morocco, and Uruguay present an even greater logistical challenge, and we intend to meet it the same way."

IAMT Annual Conference & Awards 2026

iamt
connect | support | inform

AVIXA

1 – 2 December 2026
Richmond Hill Hotel, London

Leading the Next Era of MediaTech

Where MediaTech meets Pro AV, unprecedented market opportunities emerge.

IAMT in partnership with AVIXA are bringing both communities together over one and a half memorable days to hear from leading industry voices, exchange ideas, make new connections and shape the future.

We'll also raise a glass to the best of the best at the IAMT Awards Dinner to celebrate the people, products and innovations moving our industry forward.

2 Industries. 1 Future.

Register now
theiamt.org/richmond

Accommodation available onsite.

There are sponsorship opportunities across the conference, networking sessions, awards and celebration, with formats to suit every objective and budget.

Get involved. Talk to Emma.

Emma Labrador Becker – Partnerships Manager
sponsorship@theiamt.org

What it Takes to Broadcast the World's Biggest Sporting Event

The FIFA World Cup is more than a football tournament. It is one of the world's largest live-production challenges, bringing together broadcasters, production teams and technology providers across multiple countries, time zones, languages and platforms.

Rohit Nagarajan
CEO, Vizrt

For the 2026 tournament, that challenge reached a new level. With matches staged across Canada, Mexico and the United States, broadcasters had to connect distributed production teams, temporary studios and remote contributors while delivering consistent coverage to audiences worldwide. At the same time, viewers expected more than the traditional television broadcast. They wanted live analysis, digital highlights and engaging visual storytelling across every screen.

Meeting those expectations required broadcasters to rethink how they captured, analyzed and presented the action. Data-driven graphics, augmented reality, virtual studios and remote production were no longer simply additional features. They became central to helping audiences understand the game and feel closer to the tournament.

Turning Match Data Into Meaningful Stories

A World Cup match generates a huge amount of data, from possession and passing patterns to player positioning and tactical movement. Yet data alone does not improve the viewing experience. Its value comes from presenting it in a way that immediately helps fans understand what happened and why it mattered.

This was where real-time graphics and visual analysis played an important role. In Mexico, Televisa Deportes, known as TUDN, used detailed 3D analysis to break down key moments and explain the decisions, movements and tactics behind them. In Norway, NRK similarly used visual analysis to give viewers a clearer picture of how the action unfolded, while Beijing TV combined analysis with augmented reality to add context to decisive plays and team formations.

These tools supported a broader shift in sports broadcasting: away from simply showing the action and towards explaining it. For broadcasters, the opportunity is not to overwhelm audiences with more statistics, but to select the information that strengthens the story. When analysis is intuitive and visually clear, even complex tactical moments become accessible to casual viewers.

Extending the Pitch Into the Studio

The physical studio also evolved during the tournament. Rather than serving solely as a backdrop for presenters and pundits, it became an interactive storytelling environment capable of bringing players, formations and match data into the space.

FOX Sports used augmented reality and real-time graphics to place player profiles, live information and 3D analysis directly within its studio. Mediacorp in Singapore used AR to preview matches and introduce team line-ups, while DAZN Spain worked with wTVision to create an immersive virtual set featuring augmented reality and real-time 3D visuals.

Used effectively, these technologies help recreate some of the scale and atmosphere of the stadium, even when coverage is produced thousands of miles away.

They also give presenters greater freedom to interact with information rather than referring to a conventional screen. The result is analysis that feels more immediate, visual and connected to the match itself.

Supporting Different Production Models

There was no single production model for the 2026 World Cup. Some broadcasters sent teams to host cities, while others produced coverage remotely from their domestic studios. Many adopted a hybrid approach, combining centralized production with on-location reporters, feeds and temporary facilities.

The technology therefore had to be flexible enough to support very different workflows. In Austria, ORF combined match analysis, live graphics and augmented reality to meet strong audience interest as the national team returned to the tournament after 28 years. In Türkiye, CNBC-e built an integrated graphics workflow incorporating automated data and reusable templates, helping its production team manage the speed and volume of live coverage.

These examples demonstrate why interoperability and scalability have become so important. Major sports productions often bring together multiple systems, data feeds, partners and creative teams. Technology must fit into that wider environment and enable broadcasters to adapt quickly without compromising the quality or consistency of their output.

Designing for Every Screen

The World Cup is no longer experienced through television alone. Fans follow matches through streaming platforms, social media, mobile alerts and short-form clips, often moving between different screens during the same game. In fact, Snapchat revealed that Gen Z fans checked their phones 10 times during a match, evidencing that younger football fans are engaging with live content from multiple screens.

Brazil's CazéTV reflected this digital-first approach, using cloud-native HTML5 graphics and real-time data to add context and immediacy to its online coverage. Its production illustrates a wider industry change: digital output cannot simply be treated as a secondary version of the television broadcast. It requires graphics and storytelling designed for the platform, audience and format.

The breakthrough of the 2026 tournament was therefore not one individual technology. It was the way data, graphics, AR, virtual environments and flexible production workflows came together to make an enormously complex event feel clear, immediate and engaging.

For the audience, the technology should rarely be the focus. Its success lies in helping viewers understand a tactical decision, experience the excitement of the studio or follow the story wherever they are watching. That is the real measure of innovation in sports broadcasting: not simply what the technology can do, but how much closer it brings fans to the action.

Media Distillery

I Just Want to Watch My Team Play

A few months ago I sat down to watch a match I'd been looking forward to all week, and spent the first ten minutes not watching football but checking where to watch the game.

Which channel or app was it on this time? By the time I found the right stream, I'd missed the kickoff.

Pieter Steins Bisschop
Head of Business Development, Media Distillery

I work in the streaming industry, so I consider myself knowledgeable and a bit better informed at this than most people. But most of it, I'm just a fan. Someone who plays hockey, watches Football, Hockey, Formula 1, and Tennis with my kids. And the more time I spend in this industry, the more convinced I am that finding sports content is one of the strategic questions our sector needs to answer to make money on the sports packages being sold at these high rates. Finding the live action is part of the problem, but also being able to catch up within a few minutes on all the action you missed is probably the biggest challenge for sports rights holders right now.

Rights Have Never Cost More

Sports rights are more expensive than ever before. At the same time, exclusivity, i.e., one platform, one home for a league, is quietly disappearing. Leagues have figured out that splitting rights across multiple buyers, a traditional broadcaster here, a streamer there, a mobile-first player for another slice, generates more total revenue than selling it all to one party. From a rights holder's spreadsheet, that's a smart move. For me as a fan, it's a mess. A single league's matches can now be scattered across two or three services in the same country.

The Part Nobody Priced In

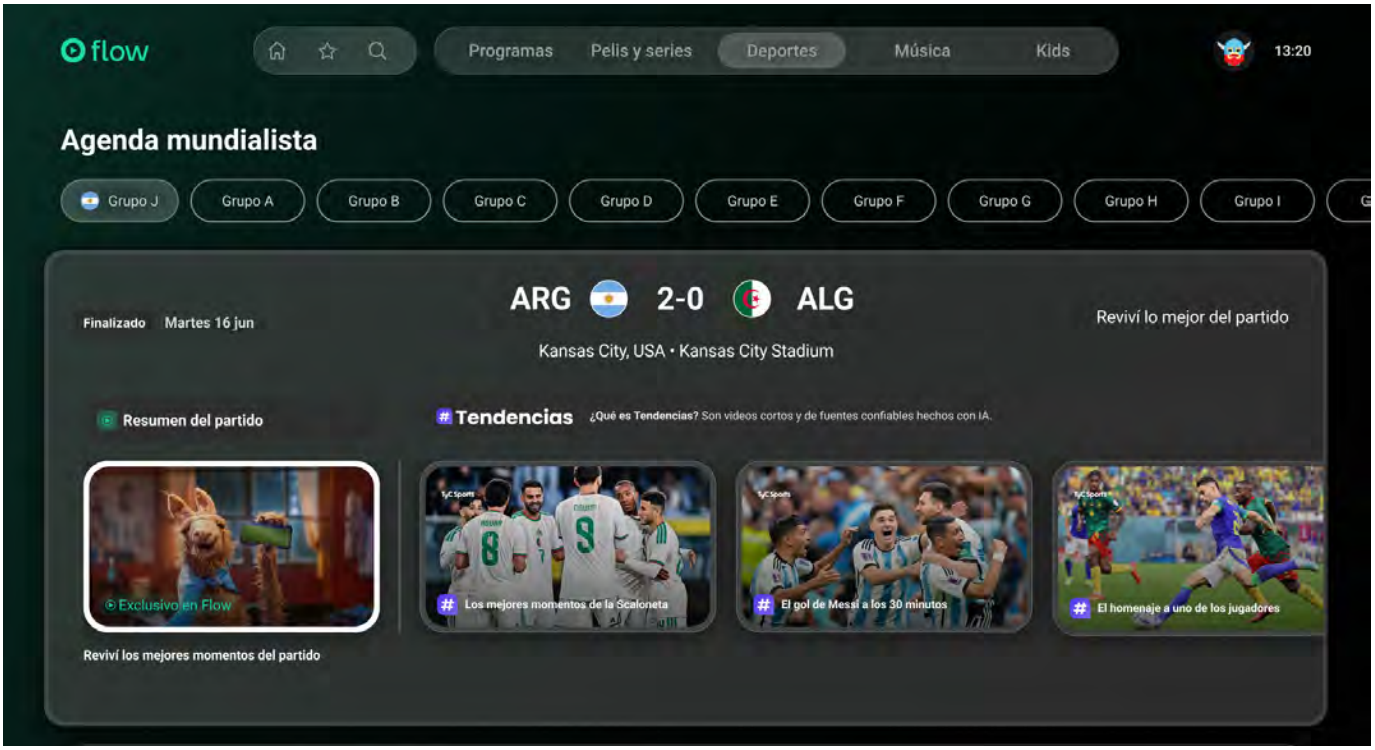
Nobody sat down during those rights negotiations and asked, "How will the fan actually find this?" That question got left for later, for the platforms to sort out downstream. But it's exactly the question that decides whether all that rights money gets its return.

As a viewer, fragmentation doesn't feel like a business strategy. It feels like friction. It's the second or third subscription bill you didn't have before. It's the moment you give up looking and just watch highlights on social media instead. Ironically, this is often where I end up finding the content I was looking for.

Where I Think the Industry Needs to Go

This is the conversation I'm most looking forward to having at IBC this year, because I don't think the answer is "buy back exclusivity"; that ship has sailed. The economics don't support it, I do believe the answer is at least partly: how to make most of the content available in a platform and serve this in the best possible way to each individual user.

So what it means for the platforms/rightsholders? Serving the live action is no longer enough. They need to reach a broader audience than those who want to watch live. That means generating short-form content from the sports rights they hold, ranging from match summaries (in different length) as well as clips of the key actions viewers want to see, as well as giving access to all related content around each match. To do so, it often requires additional investment in things that used to be considered plumbing: metadata that actually supports viewers in finding a specific moment. So a fan can be pointed to the right place instantly rather than left to guess. It means building around what fans like to consume both live and



A concept design of Personal's Flow user interface for the World Cup, showing a match summary and related trending content (Tendencias) side by side.

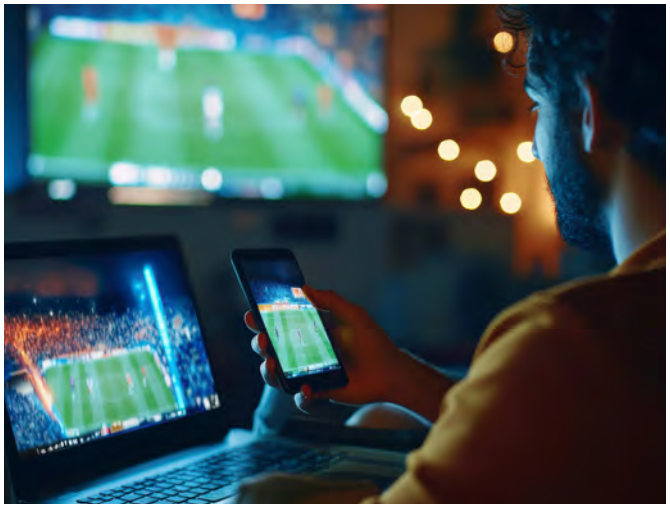
timeshifted. Giving them the feeling that a platform is the gateway to the content rather than a limitation. I would love to see the post-match interviews or bits and pieces of a talk show if my own FC Utrecht finally won a match. It means offering fast, automated highlights not as a nice add-on but as the entry point into the platform and the shorts around the content that keeps someone engaged with a platform even on the days their match isn't there.

What I'll Be Asking People at IBC

I don't have this fully solved, and I don't think anyone in the industry does yet. But I know what I want to ask the people I meet in Amsterdam this September: not "how much did your rights deal cost," but "how are you actually finding your content on a Saturday afternoon?"

For the 2026 FIFA World Cup, we worked with Personal, Argentina's leading integrated connectivity and entertainment company, to enhance how viewers could enjoy the tournament. We provided auto-generated summaries for all 104 matches, delivered within 15 minutes of the match ending. These summaries contained all the key actions people would expect: chances, goals, replays, VAR moments, penalties. But not just that; Personal wanted to make sure the summary told the story of the match. The highlights were a big success: 23% of Personal's 2 million video subscribers watched at least one highlight, totaling 2.3 million viewing sessions. Viewers used it to catchup on matches they didn't see, but also to relive their favorite moments again in the days after the game.

We also used AI to auto-tag all tournament-, team-, and player-related TV content, so viewers could discover and watch match-related content via Personal's trending topics feature, "tendencias". They could, for instance, quickly catch any short clip related to Messi from the original linear content, presented as a video snack. Tendencias was used by 55k subscribers who managed to catch all the updates in short-form content, with 160k sessions in total. For me, it proves the importance of being able to serve video to subscribers in different ways. Whether it is a live channel, a VOD asset, a summary, a key moment from a game, or a short clip, it helps in engaging the audience in the best way possible and making most of the content available on the platform.



Adder Technology and the 2026 World Cup

The world's biggest football competition is one of the most technically demanding stages in live sports, connecting stadiums, systems and teams across a range of locations.

Success is often measured by audience size, viewing time and the global reach of the coverage.

Conn Dunning
West Region and LATAM Sales Manager, Adder Technology

Yet these metrics tell only part of the story. Behind every moment is a complex technological ecosystem where performance can be measured through responsiveness, reliability and uptime. During a global tournament, these less visible indicators are critical. The supporting infrastructure must run seamlessly under pressure, while adapting to evolving requirements and increasingly complex workflows.

As audiences embrace new viewing technologies, expectations around quality, choice and timing continue to rise. Broadcasters must respond with new formats and outputs while coordinating these complex workflows with precision.

It is when the technologies that analyze, present and distribute live feeds operate as a unified ecosystem that their true value becomes clear.

By connecting operators to the systems they require and enabling those systems to respond instantly to the live demands of live production, broadcasters can create more flexible, resilient and responsive production environments.

Achieving this level of coordination is moving from a 'nice to have' to an operational essential in stadiums. To create more interconnected and responsive environments, broadcasters are increasingly introducing IP-based connectivity alongside established SDI infrastructure. But for many venues, this switch is not one that happens instantly. It is a phased transition in which established systems must continue to work seamlessly with emerging technology.

Stadiums are often powered by multivendor technology that commonly spans a range of generations. When looking to adopt new systems, the technology already available in the venue shouldn't limit the solutions that can be introduced in the future. Vendor-neutral technology offers broadcasters the ability to invest in infrastructure that meets the requirements of today while remaining adaptable as production platforms change and evolve.

APIs extend this flexibility by allowing broadcast teams to integrate control into their existing systems and create workflows tailored to their operational requirements. In an IP KVM environment, an API can enable access and control to become part of the wider production workflow, rather than operating as an isolated technology layer. This can support streamlined user interfaces

and enable faster transitions between productions or operational applications.

API integrations can often simplify the operator's experience. Production teams should be able to focus on the action in front of them and respond accordingly, rather than having the underlying connections between their workstation and the systems they need to access. They need access to the systems supporting production without that technology becoming a distraction from the live event. By bringing access and control into familiar interfaces and processes, broadcasters can reduce the configuration requirements for operators and support them in moving between systems, productions and roles.

By selecting technology designed for multivendor environments, broadcasters can build infrastructure that is ready to accommodate change while reducing the technical and commercial constraints that vendor lock-in can bring.

Flexibility must also be underpinned by resilience. In live production environments, technical teams cannot pause the action in front of the camera while managing technical challenges in the background. Centralized systems, granular user permissions and direct access to critical resources can help production teams maintain continuity as requirements evolve or workstations vary in availability. This operational agility is equally as important as the performance of each individual component.

This becomes even more valuable at tournament scale. Venues may need to expand their production teams, alter responsibilities and adapt operational requirements depending on the demands of each production and event. The ability to reassign access and reconfigure workflows can reduce dependence on recabling and help technical teams respond more quickly as requirements change.

As audiences move towards richer viewing experiences, new demands are placed on the infrastructure that supports the operator. With HLG and HDR becoming more prevalent in live broadcast, the technologies that enable operators to access and control critical systems must preserve the visual information on which that content depends. Workflow compatibility is now more than just a technical specification; it is an operational requirement that helps production teams respond confidently as the live action evolves.

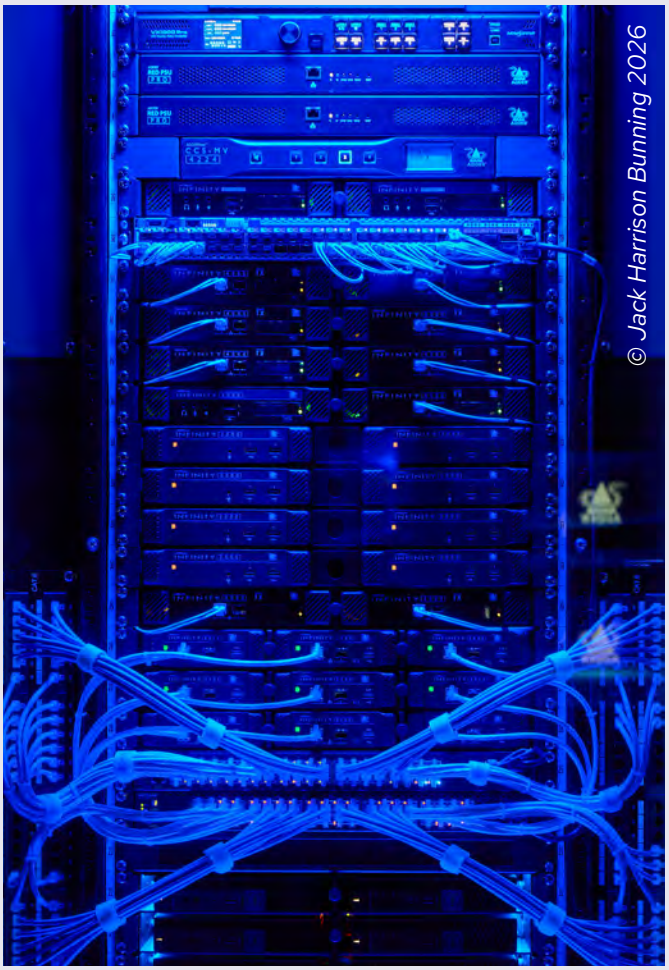
HLG signal compatibility across an IP KVM workflow supports operators in viewing and confirming HLG content

directly from their workstation, reducing the reliance on an additional reference monitor. This creates a more streamlined and optimized workspace while maintaining access to the visual content that operators need to confidently review content quality as the live action unfolds.

The value of this approach extends beyond a single competition. Stadiums must support domestic fixtures, international events, concerts and other forms of live events, each of which bring different production teams and content requirements. Infrastructure that is interoperable across vendors, able to accommodate legacy and emerging technologies and adaptable through software integrations enables operators and venues to benefit from greater freedom without rebuilding their operational environments.

The most successful venue technology is often the most invisible to the audience. Its impact is realized through reliability, responsiveness and quality of coverage by connecting operators to the systems they depend upon and bringing the action to viewers globally.

With over 40 years' experience in live production and stadium environments, Adder's high performance IP KVM solutions are designed to connect operators to critical systems across diverse and multivendor infrastructures. By offering API integrations and support for HLG signals, Adder's IP KVM technology provides an adaptable access layer that evolves alongside the wider production ecosystem.



IAMT’s agentic AI model.

Ask MAI now.

theiamt.org

ROHDE&SCHWARZ
Make ideas real

A New Era for Free-to-Air TV in Brazil: DTV+ Delivered 4K UHD and Interactive Services During the Soccer World Cup

Rohde & Schwarz technology supported free-to-air television in Brazil during the Soccer World Cup 2026, supplying the country's first commercial transmitters built specifically for DTV+.

Installed ahead of the tournament in key metropolitan regions, the new infrastructure enabled broadcasters to present live matches in 4K UHD with richer interactivity and more personalized viewer experiences – demonstrating how next generation terrestrial broadcasting can coexist and integrate seamlessly with broadband services.

The next chapter for over the air television

Digital Television Plus (in short: DTV+, also known as TV 3.0) modernizes terrestrial TV by combining top picture quality with an app-based user experience that leverages broadband connectivity. For viewers, this means sharp live images and a seamless interface that effortlessly merges traditional over-the-air content with internet-delivered services. During the World Cup, this enabled immersive 4K match feeds, on-screen interactive features, and the initial rollout of targeted commercial formats that demonstrated the system's technical and commercial viability.

Purpose built transmitters for a future ready standard

Rohde & Schwarz supplied transmitters engineered from the ground up to meet DTV+ requirements. These systems incorporate the company's software defined exciter technology, allowing flexible modulation and rapid feature upgrades through software rather than hardware changes.

Operating in the higher portion of VHF Band III – a pioneering use of that spectrum for television applications – the transmitters leverage advanced MIMO (Multiple Input Multiple Output) and LDM (Layered Division Multiplexing) transmission techniques. Together, MIMO and LDM significantly increase effective data throughput and enhance signal robustness in urban environments, which is especially important for dense metropolitan areas where reliable reception and

high data rates are required for UHD and interactive services. Geographic segmentation capabilities allow broadcasters to tailor content and advertising by region, bringing a level of localization previously hard to achieve over terrestrial networks.

Seamless viewing and richer interactivity

The DTV+ app centric model is designed to present match content alongside companion apps and services. The platform supports integration of over the air 4K feeds with broadband delivered features and remote control interaction. This tight integration reduces friction and can create a more engaging live experience without forcing viewers to jump between separate apps or devices.

The system supports enhanced commercial features such as targeted advertising and integrated shopping. Leveraging geographic segmentation and app delivered offers, broadcasters could tailor ads and promotions to local audiences while maintaining the broad reach of live sports coverage. The platform is designed to enable these capabilities without compromising broadcast quality or introducing perceptible latency, subject to network and operational conditions.

Operational reliability under live conditions

Delivering live sports at scale imposes exacting demands on transmission infrastructure. The Rohde & Schwarz transmitters were installed and commissioned in time for the tournament, and they operated with the reliability and low latency required for live sports broadcasting. The software centric architecture made it possible to deploy updates and patches with minimal on air impact, while MIMO and spectrum strategies preserved signal quality across diverse reception conditions.

From an engineering perspective, the project demonstrated how modern transmitter design can reduce the operational complexity of hybrid broadcast/broadband services. Broadcasters can benefit from a unified platform that integrates terrestrial playout and IP delivered services, allowing the same ingested content to be extended with app based features via centralized orchestration and APIs, thereby simplifying operations, reducing integration complexity and lowering potential points of failure.

A commercial and technical proving ground

The Soccer World Cup served as an ideal high profile validation scenario. Large audiences, high expectations for picture quality, and a fast pace of content updates placed the new DTV+ infrastructure through rigorous real world testing. The outcome was a successful demonstration that terrestrial broadcasting can evolve beyond one way video delivery to provide interactive, personalized services competitive with purely internet delivered alternatives – while retaining the unique advantages of broadcast distribution such as spectrum efficiency and mass reach.

Looking ahead: readiness for 8K and broader roll out

While 4K UHD was the immediate focus for the World Cup broadcasts, the transmitter and network architecture have been designed with future upgrades in mind. Features such as MIMO and improved spectral efficiency increase available throughput and resilience, positioning the platform to accommodate higher resolution services such as 8K as codecs, consumer devices and network capacity mature.

The successful World Cup deployment has set a practical precedent for larger roll outs. With the core technology validated under heavy live usage, broadcasters and network operators can plan phased expansions knowing the system has been proven at scale. The software defined approach further reduces the time and cost of deploying new features, enabling a faster pace of innovation and closer alignment with viewer expectations.

A strategic step for terrestrial television

Completed ahead of the Soccer World Cup, the deployment highlighted how strategic investment in transmitter technology and spectrum can transform the broadcast experience. By integrating robust over the air delivery with broadband enabled apps, the DTV+ rollout demonstrated a clear path for terrestrial television to remain relevant and competitive in the streaming era. Rohde & Schwarz acted as the supplier of the DTV+ transmitters and provided the operational know how to support the rollout, a contribution that was instrumental in bringing this vision to life and provides a practical blueprint for future upgrades and the continued modernization of free to air broadcasting.

YOSPACE®

The 2026 FIFA World Cup Broke Advertising Records. But This is Just the Start.

Paul Davies
Head of Marketing and Partnerships, Yospace

The 2026 FIFA World Cup demonstrated the extraordinary commercial potential of live sport, with Yospace stitching a record-breaking 11.57 billion advertisements into live streams across the tournament.

At an average of 297 million ads per day, that was 41% higher than during the Paris 2024 Summer Games.

It was also a World Cup unlike any previous edition. Expanded to 48 teams and 104 matches, the tournament created more advertising inventory than seen before, while the introduction of hydration breaks offered many broadcasters two additional advertising opportunities per match.

Despite the records set by this World Cup, the full potential of advertising around major live sporting events is yet to be realized. Developments in Dynamic Ad Insertion (DAI), new non-linear advertising formats, and emerging measurement standards are set to change how broadcasters and rights-holders monetize live content.

Opportunities Beyond Linear Ad Breaks

Perhaps the most talked about development right now is non-linear ad formats, which promise to open up new inventory for media companies, beyond the traditional linear ad break.

Linear ads remain extremely valuable, of course, but advertisers are also increasingly interested in formats that appear alongside the main content and offer better attribution opportunities. Historically, however, the implementation of these formats has been difficult to scale beyond one-off or bespoke deployments.

Now, for the first time, standardization of these ad formats is underway to establish greater consistency in how non-linear formats are authored, traded and delivered. This is through the IAB's Ad Format Hero initiative, which has established the Ad Portfolio and Ad Format Guidelines, including overlays, lower-thirds, squeezebacks and side-by-side presentations, in order to scale them for mass audiences and programmatic trading for the first time.

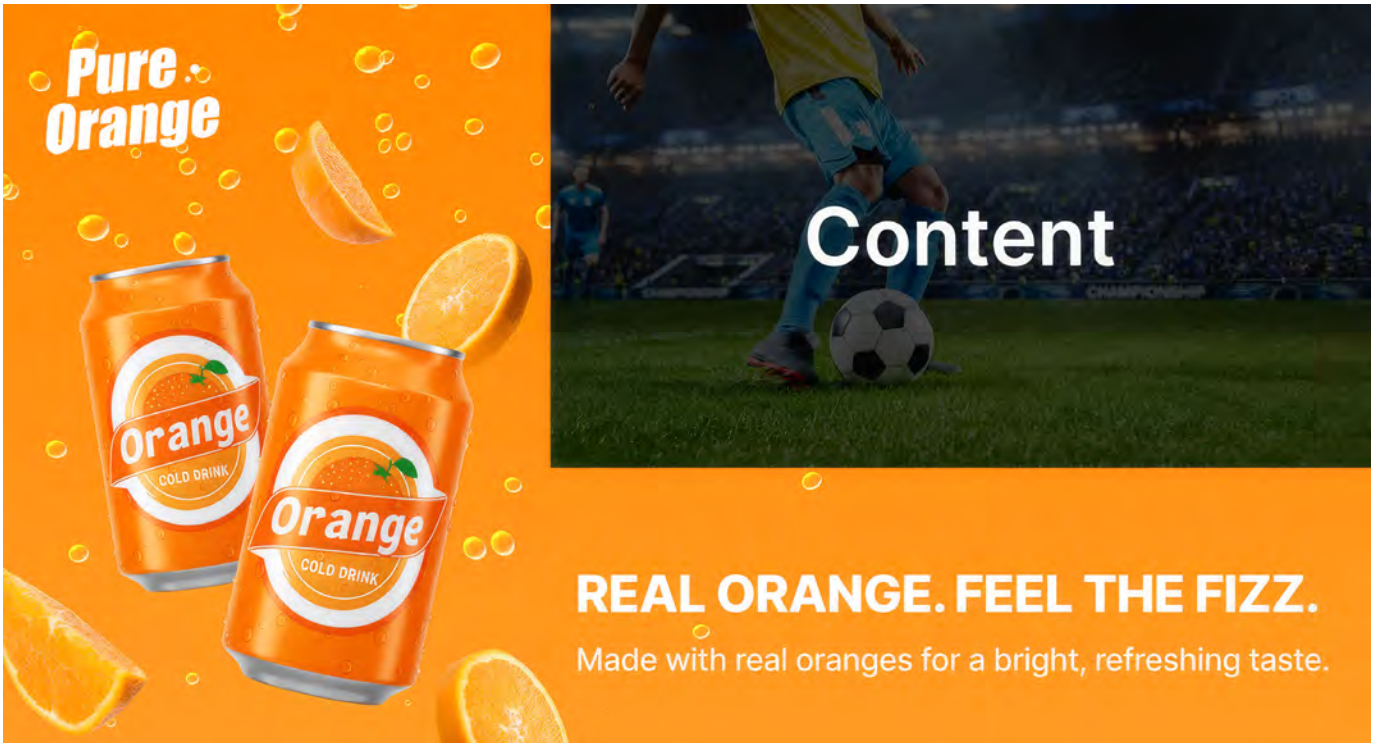
Such formats are nothing new. They have been available for years, but without standardization in place, each campaign has required bespoke formats that must be rendered for each and every viewer endpoint.

Standardization will transform media companies' ability to deploy them, as long as they are supported by the DAI engine.

The World Cup has already provided a glimpse of what such ads can look like. During hydration breaks, Telemundo used sponsored on-screen graphics while maintaining live match commentary, which were generally well received. As non-linear formats become standardized, executions of this kind should become easier for advertisers to buy and for broadcasters to deploy, measure, and scale across different services and markets.

Another notable benefit of the IAB's project is the ability to dynamically create QR codes for each viewer session. This is truly groundbreaking for Connected TV (CTV), as it provides advertisers with a much sought-after link between ad spend and sales.

Non-linear ad formats can be enabled by a simple client-side plug-in that handles rendering and delivering ads at premium TV quality across



a breadth of CTV devices, including legacy ones. Non-video creatives, such as display or animated PNGs, can be deployed across older CTV devices that would struggle with video.

Server-Guided Ad Insertion: The Next Era of Ad Stitching

One of the most important developments in the evolution of DAI is Server-Guided Ad Insertion (SGAI). SGAI is the next stage in a journey that began with Client-Side Ad Insertion (CSAI) and developed into Server-Side Ad Insertion (SSAI). SSAI is currently the most widely deployed method of ad insertion today, especially for live streams and the 2026 FIFA World Cup.

By handling advertising separately from the primary content playlist, SGAI creates an operational efficiency that makes longer DVR windows easier and more cost-effective to support. Viewers can rewind further into a live event, while broadcasters can monetize historic ad breaks dynamically at the point at which they are viewed.

It can also support addressable advertising without introducing additional latency. As broadcasters continue to work towards live streaming experiences comparable with traditional broadcast, combining low latency with addressability will be increasingly important. Up to now, low latency deployments have tended to cause reliability issues with advertising, where a huge amount of real-time processing between the streaming tech and adtech happens behind the scenes.

Looking ahead to future global events, I would expect to see a lot more DAI-enabled low latency deployments for the 2028 Summer Olympics. Come the 2030 FIFA World Cup, we will probably stream most matches with low latency. I expect extended DVR windows of two hours or more to arrive even sooner as they come with a clear revenue benefit through historic ad breaks.

One important point about SGAI is that it is often viewed as a route to deploying non-linear, Ad Format Hero ads. In truth, a client-side plugin is required across both SSAI and SGAI. This is good news for many because it allows media companies with SSAI workflows to deploy non-linear ads today. It also provides some insulation if they're planning to transition to an SGAI strategy, as the non-linear formats will continue to operate throughout the process.

The Opportunity Ahead

Major sporting events such as the FIFA World Cup demonstrate the enduring power of live content to attract large, engaged audiences. But the industry's next phase could be even more significant.

Standardized non-linear ad formats can create valuable inventory around the live action itself, and this will get advertisers excited. Meanwhile, SGAI can help broadcasters deliver better viewing experiences while opening new monetization opportunities. Improved measurement can give advertisers greater confidence in what they are buying.

Taken together, these developments point towards a live advertising ecosystem with more inventory, greater flexibility and stronger measurement.

The records being set today are significant. But for broadcasters, rights-holders and advertisers, the biggest opportunity may still be ahead.

What the World Cup Taught Us About Streaming Retention

FIFA says 10 million people registered for a new FIFA ID during the World Cup. That figure shows how a major sporting event can turn mass attention into a direct digital relationship.

Craig Ferguson
Associate Vice President of Sales, Europe, Evergent

The harder number will arrive later. How many of those new accounts will still be active in the months after the final? Peak audience figures show how big the moment was. They reveal less about the relationship that remains. For broadcasters and sports organizations, that distinction matters.

The 2026 World Cup brought together audiences with very different viewing habits. Some followed every match. Others watched their national team on free-to-air television and caught clips on social media. A smaller group paid for access where it was available.

Calling all of them "World Cup fans" may be accurate, but it is not commercially useful.

One Tournament, Several Kinds Of Fan

Live television still does much of the heavy lifting. Ofcom's 2026 Media Nations report found that 85% of UK sports viewing in 2025 was live. England's semi-final defeat drew a reported peak of 24 million across BBC platforms.

Free-to-air coverage can still create the shared national audience that sport depends on. That audience should not be treated as a failed subscription funnel. Many viewers came for England and were never going to buy a year-round football product. The opportunity is to give them a reason to identify with the product while their interest is high. Predictions, rewards or access to extra coverage can do that without putting the match behind another login wall.

Behavior then adds context. Someone who registered before the group stage and returned most days has shown a different level of interest from someone who appeared for the semi-final. Those audiences should not receive the same offer after the tournament.

FIFA's own figures make the distinction clear. The tournament generated 20 billion video views across its digital platforms, yet a view, a registration and a paid pass represent different levels of intent. Subscriber technology earns its place when it helps sports businesses act on those differences, rather than treating a huge audience as one marketing list.

The Event Pass Opens the Door

The World Cup also made a strong case for products with a clear finish. A fan who wants one tournament should be able to buy one tournament. Forcing that viewer into a rolling contract may improve short term retention metrics, but it is unlikely to build trust.

Regulators also have a reason to rethink that habit. The UK government estimates that 9.7 million unwanted subscription contracts are active, costing consumers £1.6 billion a year. New subscription-contract regulations are expected to take effect in January 2027. Customers who join online will need a straightforward online exit, while new reminders and renewal rights will make it harder for services to rely on people forgetting to cancel.

Sports providers should welcome the shift. Event-led viewing is seasonal by nature. If leaving feels like a trap, fans may remember the cancellation experience longer than the winning goal. A clean exit keeps the relationship open for their next event.

TVNZ's World Cup offer showed how a more flexible model can work. The New Zealand broadcaster introduced its first TVNZ+ Event Pass while keeping its free-to-view service at the center of the proposition. Evergent supported the move to the new TVNZ+ platform and the commercial set-up behind the pass.

Across its free and paid offers, the tournament produced more than 20 million streams. The key lesson is choice. TVNZ did not try to turn every viewer into the same type of customer . It added a paid route for the event, learned from the response and kept the broader audience inside a familiar service.

Retention Starts Before Kick-Off

An event product can end without the customer relationship disappearing. If viewers have given permission to hear from the service again, their accounts remain valuable. So does knowing what they watched and when they stopped.

This is where churn tools need to go beyond just prediction. Knowing a fan is likely to leave is useful, but often predictable when their team has just been eliminated. The harder task is deciding what to offer next and having the systems ready to deliver it.

A committed supporter may want another football product. A casual viewer might prefer free highlights until the next international window. Others may want to pause. Good subscriber management supports those different paths, because a cheaper or dormant account is easier to re-engage than somebody who left feeling misled.

None of this can be built after the final. Follow-on products need to exist. Permissions need to be clear. Payments and access rights must work when demand spikes just before kick-off. The technology behind a successful World Cup stream may go unnoticed. When it fails, viewers notice immediately

The 2026 tournament showed what modern distribution can achieve, from the scale of its digital reach to new ways of selling a single event. Its lasting lesson may be simpler. The audience peak is a starting point, not the result. After the final, the strongest sports services will look beyond how many people arrived. They will ask how many stayed.

Inside the ad break: what the 2026 World Cup actually changed

FIFA turned the hydration break into an advertising window in all 104 matches. Broadcasters spent the summer disagreeing what to do with it. Some of it was new; one widely repeated part never happened.

Yoann Hinard
COO, Witbe

One rule changed. Everything else was a choice.

In December 2025, FIFA mandated a three-minute hydration break in each half of all 104 matches, added back in stoppage. Cooling breaks were not new. Brazil 2014 had them, triggered by heat above 32°C wet-bulb, but the 2026 version was automatic in every match, regardless of venue, roof or temperature.

In March 2026, FIFA authorised rights holders to sell it, either a full break or a split screen restricted to FIFA partners, barring ads within 20 seconds of the whistle and requiring coverage back 30 seconds before play resumed. That was the entire rule change; the rest was broadcasters deciding what to do with two new minutes, 208 times.

Four broadcasters, four different answers

Fox ran full-screen commercials for the first week, then switched to side-by-side at match 28. Combined Fox/Telemundo ad revenue hit $1.19bn against $441.9m for Qatar 2022, streaming up 839% to $166.2m. Telemundo refused to cut away, running graphics in the corner.

ITV declined too, for the most instructive reason. Having trialled in-play picture-in-picture ads during the Six Nations, it judged the format would cannibalise inventory, collide with UK ad-minutage rules, and offer little upside under FIFA's restriction.

M6, carrying 54 matches free-to-air in France, went furthest. A 20-second spot sold for around €315,000, and hydration breaks drove over 20% of match ad revenue, through novel formats like a "Gaming Ad" and a "Loading Ad" giving advertisers control of the progress bar.

The number that guarantees the format comes back

Across Yospace's streaming clients, audience loss during hydration breaks was 0.4%, against 16.82% at half-time, a gap that guarantees the format's return. Volume followed: 11.57 billion adverts stitched, 297 million a day, 41% above Paris 2024, and 637 breaks against 326 in 2022. One caveat: this covers only 14 of Yospace's clients, and landed 14% below its own 13.5 billion forecast.

What was actually new in the stack

Four deployments stand out, and none is the one most people cite. In Belgium, RTBF, RMB and Ad Insertion Platform ran server-guided ad insertion (SGAI) during Belgium v Egypt, the first SGAI deployment at a major broadcaster, blending server-side and client-side insertion and enabling pause ads and re-monetised breaks within a DVR window.

NBCUniversal and Telemundo opened the tournament to programmatic buying. Fox One shipped AI-driven personalisation, including a "Canvas" dashboard from onboarding preferences. Comcast's Xfinity Fan View let viewers favourite teams, and DAZN launched a prediction game via ADI Predictstreet.

The boards, however, did not change

Here is the claim to retire: there was no virtual replacement of pitchside advertising. No vendor, publication or rights holder said otherwise, and every deployment marketed as "World Cup 2026 virtual advertising" traces to the qualifiers, run by the confederations, not FIFA. The tell is that two prediction-market brands with different legal status simply shared one rotation of signage instead of running separate feeds.

This is not a regulatory ban. IFAB Law 1 bars advertising, real or virtual, on the field of play, but FIFA permits it outside that zone. It is a commercial choice: FIFA partners buy one global inventory, so there's nothing to vary.

What broke, and where it broke

The tournament's clearest failure came in its opening match. Fox's commercials at Mexico v South Africa ran 40 seconds over the permitted window, coverage returning 10 seconds late. FIFA took no action, since the referee had called an early break lasting 1 minute 54 seconds.

A subtler failure is more revealing. Because server-side insertion serves ads from the same origin as the content, VPN users running ad blockers didn't lose the ads; they lost the stream. ITVX viewers were affected, while ad-free iPlayer was not. Every format is assembled per feed and must survive the device layer, from decoders to app players and firmware. The manifest reports success, but the screen is where it worked or didn't, and the viewer blames the operator, not the ad.

What this means after the final whistle

The ad break has stopped being the safest moment in a broadcast and become a live production event with its own failure modes: transitions, regional variants, audio handback, device rendering.

Through the tournament, Witbe ran QA and monitoring on real consumer devices for broadcasters and operators across North America and Europe, watching matches the way subscribers did, launching the app, joining the stream, sitting through every break, capturing frame-accurate video of the screen. The consistent finding was that transitions failed more visibly than ad content did, and identical streams behaved differently across device generations, neither detectable from a manifest. The question is not whether the advertising was delivered, but whether anyone was watching the screen when it was.

Two ways to change a pitchside board

Virtual advertising is often treated as one technology. It is actually two, with different physics and limits.

Computer-vision compositing identifies the physical board and replaces it with different artwork per feed. It needs no venue hardware, but is limited by what the software can track cleanly. Supponor AIR, AIM Sport and uniqFEED work this way, and the Bundesliga uses it for up to five feeds. The NBA's courtside signage is this category too.

LED frame multiplexing has the board itself display several creatives interleaved at high frame rate, with genlocked cameras capturing only their assigned frames, so nothing is composited. Appario's Dynamic Content Multiplication, licensed as Parallel Ads, subdivides a 50Hz frame into 200Hz slots for four streams, but it needs matching LED hardware and camera sync.

Neither is addressable. Both deliver a fixed, small number of regional feeds decided in advance.

logituit

Beyond the Broadcast: What the FIFA World Cup 2026 Reveals About the Future of Live Streaming

A major live sporting event is ultimately judged by what happens on the field. For technology teams, the real test is what happens on the viewer's screen.

Sourav Basu
Android Practice Head, Logituit

At Logituit, we have worked across more than 10 major live events, including IPL and FIFA, supporting large-scale sports experiences across leading OTT platforms. This has given us a clear view of what millions of viewers expect: a reliable, responsive, and engaging live experience.

Our experience supporting OTT platforms serving more than 100 million users has reinforced a simple lesson. Live streaming is no longer just about delivering a video feed. It is about designing an experience around the live moment.

The FIFA World Cup 2026 was another opportunity to put these learnings into practice. Through LogixPlay, Mediacorp's mewatch platform delivered the tournament across web, mobile, Apple TV and Android TV, combining low-latency playback with features such as live scorecards and key-moment markers.

But the real value of working across multiple live events is what these experiences teach us about where sports streaming needs to go next.

When "Live" Really Means Live

For sports viewers, latency is emotional.

A few seconds between an event happening in the stadium and appearing on a screen can mean receiving a goal notification before seeing the goal. In ordinary entertainment, that delay may go unnoticed. During a penalty, a last-over finish or a last-minute goal, it can change the experience completely.

Our experience has shown us that low latency should be treated as an experience metric, not simply a technical specification. The objective is to make digital viewing feel as close to the live event as possible while retaining streaming flexibility across connected devices.

As sports audiences move between broadcast, OTT and multiple screens, low latency needs to be considered from the beginning of the architecture.

One Event, Many Screens

There is no longer one definition of the sports viewer. The same match can be watched on a television, phone, laptop, or another connected device. Each brings different hardware, operating systems, network conditions, and viewing behaviors.

Multi-platform delivery cannot simply mean making an application available on multiple devices. The core viewing experience needs to remain consistent while adapting to each platform.

This is where the video player becomes critical. It is where the complexity of delivery and device compatibility becomes visible to the viewer.

If the stream starts quickly, remains stable, stays close to the live action, and responds naturally to interaction, the underlying technology disappears. That is the ideal outcome.

From Watching to Participating

The next opportunity is to move viewers from simply watching to actively participating.

A live sports stream can bring scores, statistics, key moments, polls, quizzes, and other contextual information directly into the viewing experience. LogixPlay has supported features such as live scorecards and key-moment markers, while Logituit has also worked on interactive experiences that bring trivia and engagement into live viewing.

The important principle is context without distraction.

A viewer joining a match late should be able to understand what happened without leaving the stream. A fan should be able to revisit a key play without searching elsewhere. A quiz or prediction can invite participation during a natural pause rather than interrupting the action.

The best interactions appear when the viewer is naturally ready to engage.

Resilience Is Invisible, and That Is the Point

After working across multiple live events, one lesson becomes clear: the best technology is often the technology viewers never notice. A live event has no rewind button. If playback fails during a goal, a penalty, or the final moments of a match, the impact is immediate.

Resilience therefore needs to extend beyond infrastructure. Testing, monitoring, device coverage, playback behavior, and recovery mechanisms all need to work together. The objective is to ensure that variations in devices, networks and traffic do not become audience-wide problems.

For large live events, preparation is part of the product. Every event provides another opportunity to learn what happened, identify friction, and improve the next experience.

The Next Opportunity: Smarter Live Monetization

Our biggest learning from more than 10 live events is that the next generation of sports streaming should not be defined by the number of features added to a player.

It should be defined by how intelligently those features fit around the live action.

Live advertising deserves the same approach. Instead of interrupting the match with conventional ad breaks, platforms can explore interactive and context-aware formats such as shoppable overlays, expandable branded moments, sponsored replays, dynamic overlays, and pause ads.

Advertising can respond to what is happening on screen. A brand could be associated with a goal replay, match statistic, substitution or natural pause, making the message more relevant without taking viewers away from the action.

The objective is to turn advertising from an interruption into a seamless part of the viewing experience, creating value for viewers, platforms, and advertisers. For us, this is the next step in live streaming. Technology should know when to engage the viewer, when to monetize the moment, and when to stay out of the way.

To Conclude

The FIFA World Cup 2026 reinforced what we have learned across every major live event we have supported: the future of sports streaming is not simply about delivering the live moment. It is about building an intelligent experience around it.

The goal is to make viewers feel closer to the action, give them more control, and create meaningful opportunities to participate, while ensuring that nothing gets in the way of the moment they came to watch.

iamt

connect | support | inform

IAMT's Brand-New Talent Portal

For IAMT members

Your next great hire is here.

Discover students, graduates and emerging MediaTech professionals and build the talent pipeline that will strengthen your team.

- **Search existing profiles**
- **Find specialist skills**
- **Connect with next-gen talent**
- **Free for IAMT Members**

For students

Create your profile.

Showcase your skills and ambitions to leading media technology companies searching for the next generation of talent.

- **Be seen by 400+ IAMT member companies**
- **First jobs, Internships, Placements, Work experience**
- **Your profile – searchable worldwide**
- **Completely free**

Visit the portal today.

theiamt.org/talentportal

How Verizon Ensured Connectivity For Over 100 games at the FIFA World Cup 2026

The partnership between Verizon Business and FIFA – which started several years ago – reached a major milestone this summer when Verizon provided connectivity for 104 matches on 16 stadiums in three different countries as the official telecommunications partner of FIFA.

The timeline for the deployment was tight, because FIFA got the venues only some weeks before the start of the tournament, and the stadium had to be ready to host over 100 matches, each the size of the Super Bowl.

To support every FIFA broadcast across all 16 stadiums, Verizon built the dedicated digital highway powering the broadcast from camera lenses to homes, adding 80,000 miles of fiber – this would be enough to wrap the Earth by over 3.2 times. Despite various logistical challenges Verizon delivered audio and video feeds and real-time match data to the International Broadcasting Center by centralizing FIFA's broadcasting operations through high-capacity fiber. A central part of the deployment was to ensure ultra-low latency to support on-field applications and to guarantee a seamless, immersive fan experience at the stadiums through Private 5G, complemented with Fixed Wireless Access (FWA) and Wi-Fi ecosystem.

Prior to the tournament, Verizon made significant network upgrades, adding more 5G spectrum to boost capacity by an estimated three to five times across all host stadiums, because they expected that spectators would use over 50 terabytes (TB) of data within a stadium for each match – the approximate equivalent of streaming HD video for more than three years. Verizon also installed thousands of antennas under seats at the stadiums and huge ball-shaped antennas to provide targeted 4G and 5G coverage for fans in upper tiers, enabling fans to watch game highlights near real time, check player statistics and to share – and live stream – clips and experiences on social media. According to FIFA, the tournament became the most digitally viewed event in US history, generating over 17.2 billion content views on digital and social platforms.

Throughout the tournament, Verizon's network supported an unprecedented level of fan engagement – nearly 500 TB of data moved across all hosting stadium environments – demonstrating the massive scale and connectivity required to power an interactive, global sporting event. During the final match alone Verizon's network carried 29.2 TB of data, and their uplink volume increased by 70% when the second halftime started, as fans pulled out their devices to share the moment on social platforms. Josh Arensberg, Global Managing Director of Sports, Media and Live Events at Verizon Business, said: "When fans go to the stadiums, they are now producing a huge amount of content. For example, in the previous Super Bowl last year, for the very first time, there was more content uploaded to the cellular network than downloaded during the game, because everybody is now a broadcaster. When connectivity is no more a limitation, everyone can now speak to their own audience."

Private 5G networks were also used to support critical applications on site such as the Lenovo Referee View

body cameras, which provided the referees' on-field point of view for a more immersive experience to fans. The company also deployed about 140 small cells outside the stadiums to support transit hubs and the FIFA Fan Festival locations.

Looking ahead, FIFA and Verizon's partnership will continue next year for the FIFA 2027 Women's World Cup. Verizon's investment in upgrading local network infrastructure will also allow its facilities to be leveraged for future events. Arensberg concluded:

> "People don't always realize that a lot of the investment we've made is a real benefit for the consumer, because it's a leave behind – they get a much better connectivity after these events than what it ever was before."

Etere Ecosystem Powers TVRI's 2026 World Cup Coverage Across Indonesia

Indonesia's national public broadcaster, TVRI brought the excitement of the 2026 World Cup to audiences across the country through TVRI Nasional and TVRI Sport and powered by **Etere Ecosystem** which brings media management, ingest, transcoding, playout and archive functions together in one centrally managed workflow.

Alex Gattari
Etere

Delivered in partnership with Etere's Indonesian distributor, PT Galva Technologies, the project includes a new LTO-9 archive and a fully integrated software environment designed to move content seamlessly from acquisition to transmission. This setup gives TVRI the capacity to manage large volumes of live and file-based material while maintaining the control, flexibility and reliability needed for high-profile sports coverage.

At the core of the installation is Etere's integrated database architecture. By bringing workflow processes under a single control system, TVRI can coordinate media operations across multiple departments, reduce manual intervention and maintain clear visibility over assets and processes throughout the broadcasting workflow.

The system includes Etere ETX, Etere Multichannel Ingest and Etere Transcoder – the three key components built to support the broadcaster's live production and delivery needs.

Etere ETX provides an IT-based video management and playout environment with IP, NDI and SDI input and output capabilities. Designed as a channel-in-a-box solution, ETX combines video mixing, master control, graphics, branding and audio/video processing in one streamlined interface. This gives operators a single platform for managing both live and scheduled content quickly and confidently.

For World Cup programming, Etere ETX supports a wide range of production and presentation needs, including multiple graphic layers, WebGL overlays, picture-in-picture effects, live web-page capture and static or animated branding elements. ETX supports 4K, HD and SD workflows, with up- and down-conversion for both interlaced and progressive formats.

Its flexible connectivity supports a broad range of live input and output protocols, including SDI, NDI, UDP, RTSP, SRT, RTP and SMPTE ST 2110. It can also convert mixed signal types on the fly. Additional features include RTMP input and output, DVB stream support, multicast UDP, time delay, SCTE-35 and SCTE-105 signal handling, and closed-caption insertion for CEA-608 and CEA-708 standards.

Etere Multichannel Ingest strengthens TVRI's ability to capture and prepare incoming content with speed and accuracy. The software supports up to six independent ingest channels on a single server, with all instances monitored from one screen. This allows operators to ingest multiple live feeds or file-based assets at the same time, a major advantage when managing parallel matches, highlights, feeds and supporting programming.

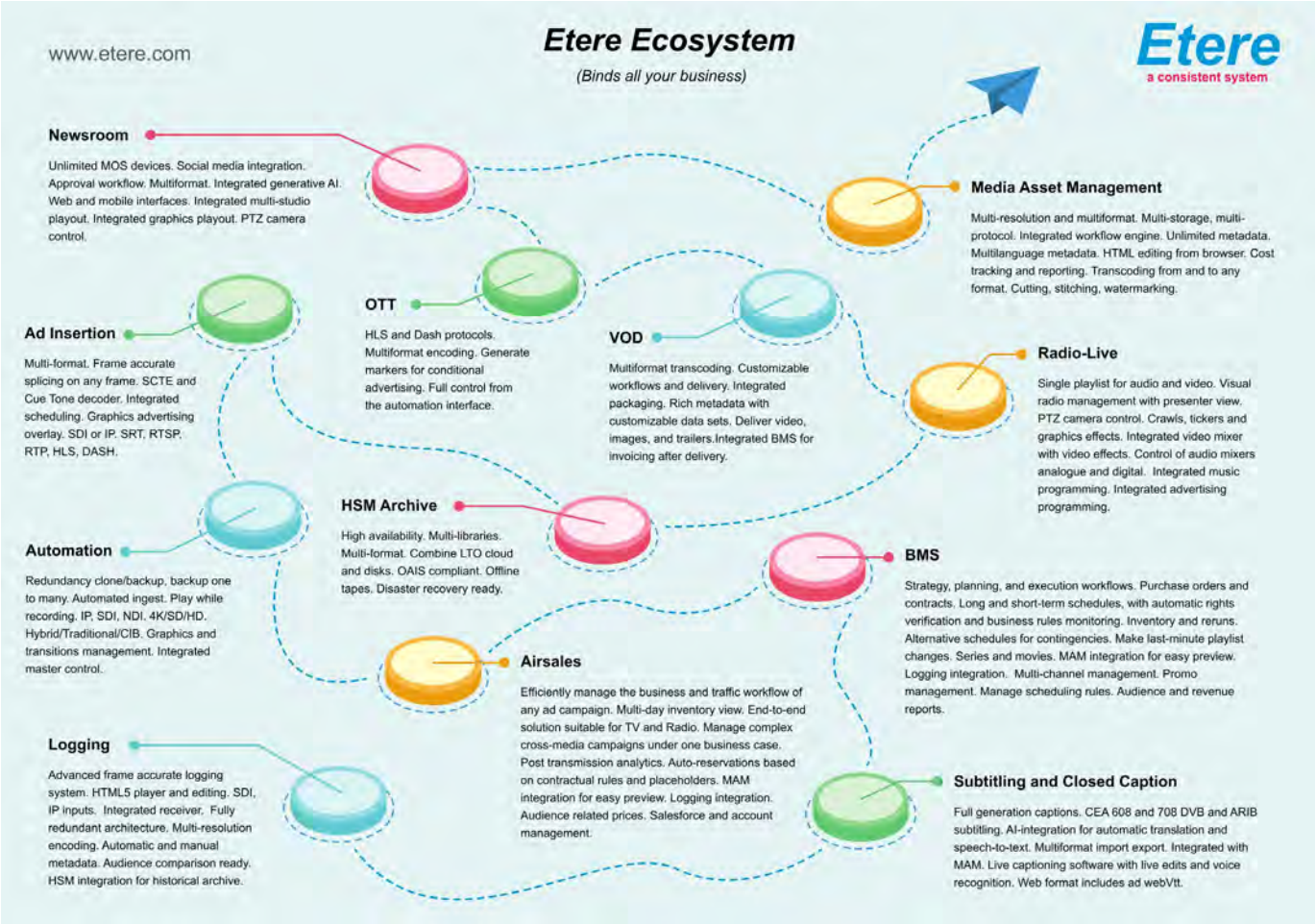
The ingest platform supports IP, NDI, UDP, RTSP, SRT and SDI workflows, as well as 4K, HD and SD content. It also offers multichannel audio ingest, closed-caption support, batch and scheduled capture, simple preview functions and true-peak audio metering. Together, these capabilities give TVRI a flexible and dependable way to capture content from live SDI and IP feeds, MPEG streams and imported media files.

For file-based processing, **Etere Transcoder** delivers conversion, transwrapping and workflow automation across production, post-production, broadcast and distribution environments. The system supports decode, encode, transcode, mux, demux and filtering operations, along with frame-rate conversion between video standards.

Etere Transcoder supports widely used broadcast and production file formats, including LXF, MOV, MXF, GXF, ASF, MPEG-TS, MPEG-PS, AVI, DV and MKV, as well as codecs such as H.264, H.265/HEVC, ProRes, DNxHD and MPEG formats. Its feature set includes GPU acceleration, HLS and DASH fragmented-file encoding, audio encoding and decoding, aspect-ratio control, timecode burn-in, custom file-naming rules and partial retrieval. It also supports caption insertion, graphics overlays and the creation of reusable transcoding profiles.

By bringing these technologies together within the Etere Ecosystem, TVRI has built a strong foundation for managing the technical and operational demands of its World Cup 2026 coverage. The deployment creates a scalable environment for live acquisition, content processing, archive management and multi-platform playout, helping the broadcaster deliver consistent, high-quality coverage to viewers throughout Indonesia.

Etere
a consistent system



About Televisi Republik Indonesia (TVRI)

TVRI (Televisi Republik Indonesia) is an Indonesian national public television network and one of Indonesia's two national Public Broadcasting Institutions, it is also the oldest television entity in Indonesia. TVRI currently broadcasts throughout the country with three national channels as well as 33 regional stations. As of 2020 it has 361 transmitters; making it a television network with the largest terrestrial coverage than any other network in the country.
https://tvri.go.id/

About Etere

Since its beginnings in 1987, Etere has been preparing users for the future. Etere is a worldwide provider of broadcast and media software solutions backed by its mark of excellence in system design, flexibility, and reliability. The revolutionary concept of the Etere Ecosystem promotes real-time collaborations and enhances operational efficiency across the enterprise. Etere Ecosystem software solutions manage the end-to-end media workflow and feature an integrative Web and Windows customizable architecture to fit perfectly in any system. Etere delivers on its service excellence commitment with 24/7 worldwide support and inclusive software updates.

Etere digital technologies and market-proven remote/on-site services, such as consultancy, training, installation, and demonstrations, are ready to run with your business no matter where you are. Etere enhances your adaptability for the future and empowers you with the most innovative software tools to drive your business to greater heights. To find a media management strategy that works for your business, visit **www.etere.com**

iamt STUDIO

IAMT Studio brings MediaTech's leading voices and boldest ideas together in one place.

From the IAMT MediaTech Forum to member interviews and show sessions, we capture the insight and energy of IBC and amplify it far beyond the show floor.

IAMT MediaTech Forum – Visual Podcast Series

We're excited to see the return of the IAMT MediaTech Forum – Visual Podcast Series, delivering premium thought leadership and C-Suite perspective.

Head to **theiamt.org/studio** to catch the latest episodes.

Interested in taking part?
Chat to Emma to sponsor an episode.
sponsorship@theiamt.org

IAMT Member Interviews

Our IAMT member interviews showcase your latest innovation, expertise and news directly to our global ecosystem providing lasting visibility to generate opportunity.

To book your member interview pleaase contact the MEG Team – **membership@theiamt.org**

Keep an eye on **theiamt.org/studio** after the show!

Visit theiamt.org/studio or search "**IAMT Visual Podcast**" on all major podcast platforms

One Tournament, Many Workflows: Building Flexible Live Production for the FIFA World Cup 2026

Andy Rayner
CTO, Appear

The World Cup showed why live sports infrastructure must adapt to different venues, networks, formats and audiences without compromising quality or resilience.

The FIFA World Cup 2026 was not simply a bigger edition of an established tournament. With 104 matches played across 39 days and staged across the Americas, it compressed many of the challenges facing modern live production into one event: more venues, more feeds, more remote collaboration, growing demand for Ultra HD, HDR and digital streaming, and no tolerance for interruption. For technology teams, success depended less on selecting a single "best" workflow than on building an infrastructure capable of supporting several.

Appear's work with FOX Sports, PSSI Global Services, Vivaro, Chilevisión, ClaroVTR and Pixop illustrates that shift. The deployments differed significantly, spanning standards-based remote production, satellite and IP contribution, linear and streaming distribution, cloud video enhancement and remote commentary. Yet they were linked by a common design principle: use a high-capacity, modular platform at critical hand-off points, then select the codec, transport method and deployment model that best suits each service.

A Common Foundation for Remote Production

FOX Sports used Appear's X Platform to modernize its live production infrastructure. The rollout extended across its Home Run Productions remote production environment, coverage of the World Cup and the broadcaster's Jewel Events system for its highest-profile national broadcasts.

For the tournament, FOX Sports deployed a remote production workflow based on SMPTE ST 2110 and JPEG XS. Ultra-low-latency contribution was essential, but so was the ability to adapt across venues with different connectivity profiles. X20 platforms supported the larger environments, while compact X5 systems supported distributed commentator workflows, enabling remotely located commentators to receive live feeds and return synchronized commentary with minimal delay.

The architecture could also use low-latency HEVC and SRT where bandwidth was more constrained or network conditions more variable. This meant the production model could stay operationally consistent even when the underlying connectivity changed. Just as importantly, FOX Sports plan to redeploy the infrastructure for other major national broadcasts, including American football and baseball. Tournament capacity therefore became a long-term production asset rather than a one-event build.

Matching the Workflow to the Audience

That same flexibility was important for Vivaro, which supported broadcasters and sports streaming platforms in Canada, the United States, Portugal, Mexico, Colombia, Ecuador and Argentina across all 104 matches. Its customers ranged from national linear channels to digital services carrying HD and 4K streams, with audiences capable of rising by millions around a single fixture.

As Daniel González, CEO of Vivaro, put it:

> For an event of this scale, live feeds simply cannot fail.

Vivaro used the X20 to process and transport feeds with both HEVC and JPEG XS, and to distribute linear services over SRT. JPEG XS provided high-quality contribution at sub-frame latency for workflows where speed and quality were paramount. HEVC offered greater bandwidth efficiency for services that had to balance picture quality with network capacity. Housing both approaches on one modular platform allowed Vivaro to configure each service around the customer's needs without creating separate technology islands.

This matters because "broadcast versus streaming" is no longer a useful infrastructure boundary. A major event may need to serve both simultaneously, at different resolutions and latency targets, while maintaining consistent monitoring and operational control. Consolidation reduces the number of systems an engineering team must manage when event complexity peaks.

Bridging Established Broadcast and Cloud Innovation

In Chile, the challenge was to create the country's first large-scale cloud-based 4K World Cup distribution workflow. Chilevisión, the exclusive free-to-air rights holder, worked with Pay-TV operator ClaroVTR, cloud video specialist Pixop and Appear to turn the broadcaster's existing 1080i HD-SDI output into a dedicated 4K UHD channel.

An X20 encoded the live feed in HEVC and transported it securely over SRT from Chilevisión's facility into AWS. In the cloud, Pixop performed real-time deinterlacing, restoration, super-resolution upscaling and image optimization. A second X20 then received the enhanced signal through a cloud-to-ground path and decoded it for delivery to ClaroVTR subscribers.

The architecture was practical. Chilevisión could add a premium UHD service by extending, rather than replacing, its proven production environment. The workflow placed cloud processing where it added clear value, while dedicated media hardware maintained reliable, low-latency transport at the edges. It is a useful model for broadcasters seeking to introduce new formats without committing an entire live chain to one deployment environment.

Protecting Premium Content in Motion

Resilience also includes security. Ahead of the tournament, PSSI upgraded its mobile fleet and Pittsburgh teleport with multiple X20 chassis. The integrated deployment combined encoding, decoding, satellite modulation and demodulation, ASI and SRT in a high-density platform suited to the mixed transmission methods used in premium live events.

PSSI also moved its video transport security to BISS-2, using AES-128 encryption, dynamic key rotation and real-time receiver control. For valuable live rights, securing a contribution path cannot be an afterthought; it must work across the same operationally diverse environment as the video itself.

Designing Beyond the Final Whistle

Across these projects, the decisive capability was not a single codec or network protocol. It was optionality: JPEG XS when latency and fidelity came first; HEVC when bandwidth efficiency mattered; SMPTE ST 2110 for standards-based media-over-IP; SRT for reliable transport across unpredictable networks; and satellite and ASI where established contribution paths remained the right choice.

The World Cup provided an unusually demanding proving ground, but its lessons apply to live production more broadly. Infrastructure should bridge on-premises and cloud resources, support linear and digital destinations, protect valuable content and scale without multiplying operational complexity. It should also be reusable, because the best return on event infrastructure comes after the event.

For viewers, the result should feel simple: the match appears, at high quality and in real time, on the screen of their choice. Delivering that simplicity requires an adaptable production foundation behind the scenes. The tournament showed that flexibility and resilience are no longer competing priorities; designed correctly, they are two sides of the same platform strategy.

deliver.media

aircheck. AutoCut: Making Football Highlight Production Faster and More Reliable for the FIFA World Cup 2026

At the FIFA World Cup 2026, every decisive moment created an immediate production challenge. Broadcasters needed to turn live football commentary into relevant digital content directly after the final whistle.

Traditional workflows, however, can require producers to review and edit long stretches of material manually, creating a constant tension between speed, quality and editorial control.

aircheck.

aircheck. AutoCut addresses this challenge with an AI-assisted workflow that helps editors identify relevant moments, prepare football commentary highlights and refine the result before publication. Developed through a long-term collaboration between WDR Sportschau, the European Broadcasting Union (EBU) and deliver.media, the workflow reduced highlight production from around one hour to less than five minutes and was successfully used during the FIFA World Cup 2026.

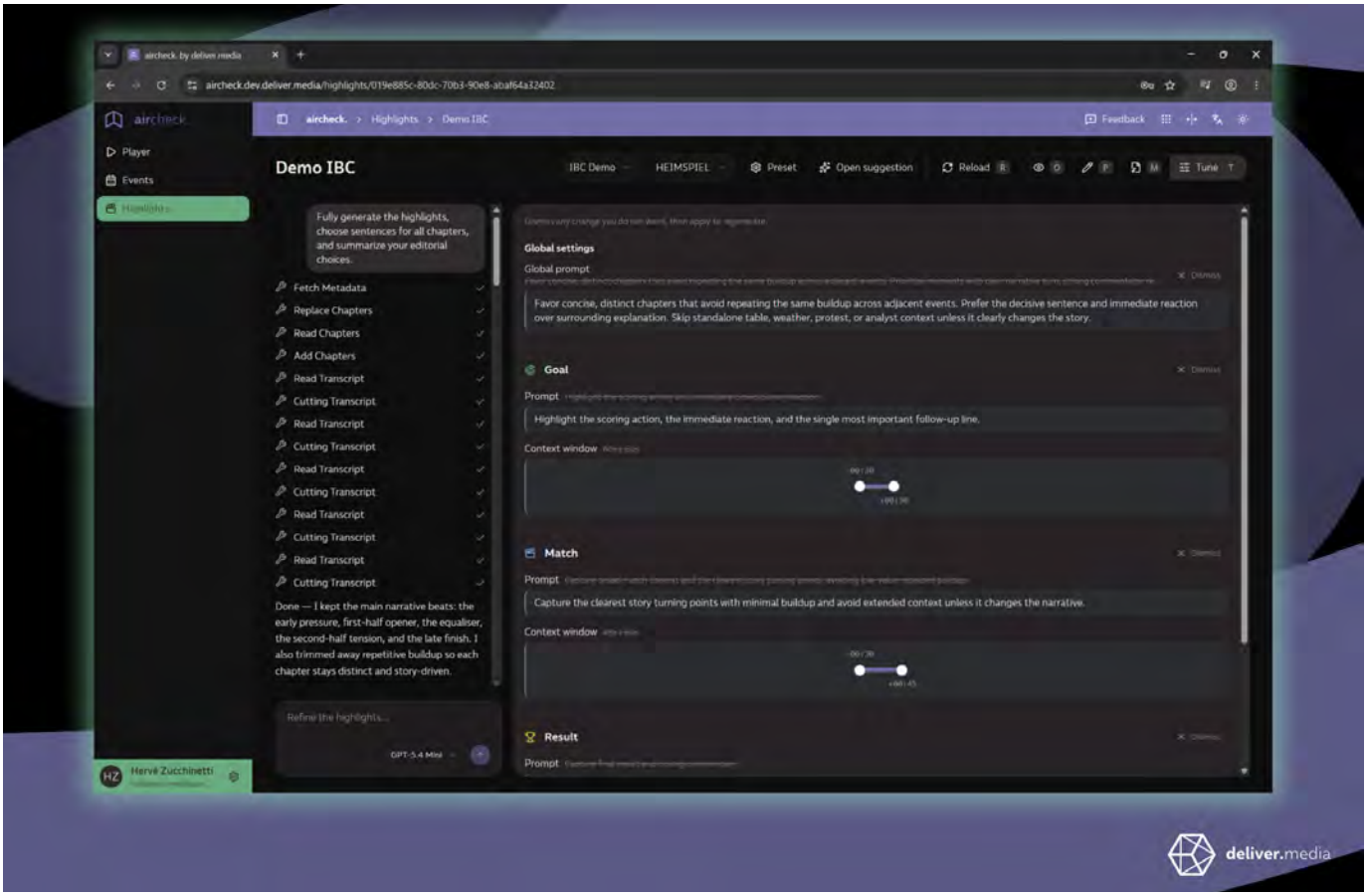
The World Cup provided a real production environment to demonstrate what makes AI useful under pressure. This article looks at how aircheck. evolved into the version used today and highlights three key lessons that shaped a faster, more precise and more dependable workflow while keeping journalists in control.

Building the workflow: from UEFA Euro 2020 to the FIFA World Cup 2026

The collaboration began during the COVID-19 pandemic, when empty stadiums changed how fans experienced football. With supporters unable to attend matches, digital coverage became even more important for capturing the emotion of live commentary and goal celebrations. For the EBU and deliver.media, the question was simple: how could those moments reach audiences faster? The answer was shaped by a combination of broadcast requirements and technology capabilities.

After UEFA Euro 2020, WDR Sportschau asked deliver.media to use aircheck. for its Bundesliga coverage. This continued partnership became an important step in the development of the system, especially with regard to sports metadata and its later AI-assisted AutoCut version.

Together with WDR and the EBU, deliver.media built the first AI-assisted version of aircheck. for UEFA Women's EURO 2025. It reduced production time by 83%, cutting the workflow from approximately one hour to around ten minutes. It also showed where further development was needed to become a dependable live-production workflow. Generic prompts selected irrelevant material, model behaviour varied, transcript timestamps did not always create clean audio cuts, and studio discussion could be confused with stadium commentary.



In early 2026, the partners therefore rebuilt the workflow rather than simply adding another AI model. The key change was to give each type of match event its own building block, with additional instructions beyond the initial prompt. On top of that, an agentic layer helped steer the selection process towards the right editorial choices. An integrated feedback recorder let producers capture problems during production and send them directly to developers. From March to May, WDR tested each iteration on Bundesliga matches under real deadlines. This repeated cycle of use, feedback, and correction prepared the system for the scale and pressure of the FIFA World Cup 2026.

Three lessons from live production

Testing the workflow under real production conditions revealed three lessons that shaped its development.

The first lesson was to divide a complex editorial task into controllable steps. Instead of asking one model to summarize an entire match, producers use configurable building blocks for goals, major chances, fouls, VAR decisions, kick-off sequences, and final summaries. Each block has its own instruction, additional guidance, timing window, and inclusion rules. On top of those blocks, editors can interact with the system as it selects and combines moments, using their production judgement to decide what belongs in an emotional highlight, while keeping the workflow precise enough to reflect different competitions, formats, and editorial styles.

Secondly, we learned that finding the right words is not enough. The workflow combines live speech-to-text with speaker recognition, match-event data, and contextual AI analysis. For a VAR incident, for example, it can connect the initial uncertainty with the referee's final decision instead of returning two disconnected fragments. Speaker separation helps distinguish emotionally important stadium commentary from studio discussion. Precision editing controls then correct boundaries where transcript timestamps would otherwise cut into a word or leave too little space around a phrase.

The third lesson was to make the automation testable and adjustable. The same match can be processed with different presets or models, using the same transcript, audio and event data. Editors can then compare the results and see which prompts and settings bring the selection closer to what they would have chosen from the match. Testing also showed that a newer or larger model did not automatically produce a better football highlight. This made improvement incremental: not a search for one perfect model, but a way to tune the workflow towards the editorial outcome.

deliver.media

Applied at the FIFA World Cup 2026, these principles helped editors reduce selected highlight tasks from roughly one hour to under five minutes, including preparation of the draft sequence before final editorial approval. Live feedback continued to refine the workflow during the tournament.

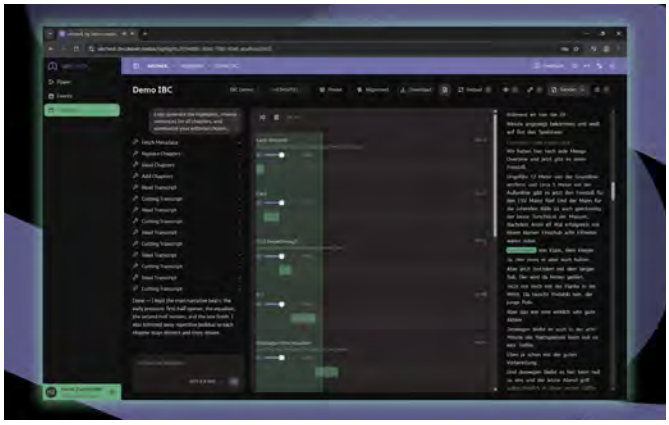
One source, more editorial outputs

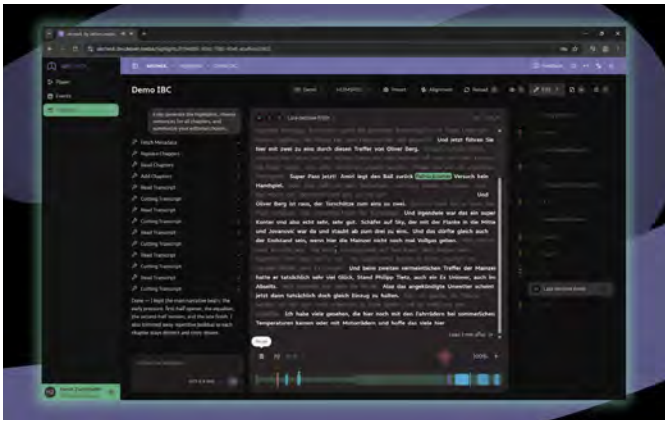
The transferable innovation of aircheck. is not football recognition alone. It is the combination of specialized, editable processing steps with a journalist's final judgement. The same principle can be applied across different editorial workflows. A press conference or interview can be analyzed for key statements and topics, while radio teams can separate speakers, locate relevant segments and prepare summaries. Television and digital teams can reuse studio discussions or event coverage for short clips and article drafts. In archives, the same approach can add structure to large collections and help users find people, topics and relevant moments through conversational search.

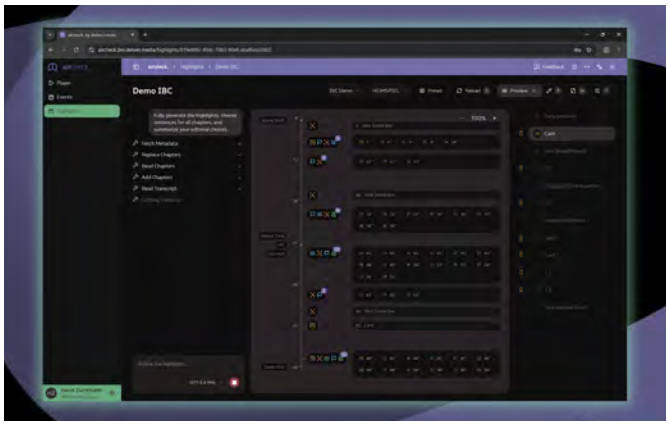
For broadcasters, the wider lesson is practical: AI becomes more dependable when it is broken into transparent tasks, tested with users under real production pressure, and designed for correction rather than automatic publication. That approach can reduce repetitive searching and assembly while preserving responsibility for context, accuracy, tone, and storytelling.

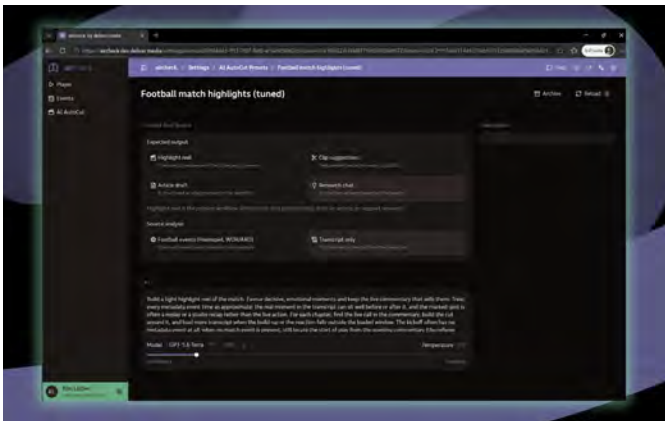
Efficiency also extends to cost and infrastructure. As a cloud-based SaaS platform, aircheck. does not require broadcasters to make significant upfront investments in dedicated production infrastructure. At CHF 20 per month, the software can be used as an operating expense rather than requiring substantial CAPEX. With around 55 minutes of editorial time saved per match, the monthly subscription can pay for itself after a single match if the value of that saved time exceeds the subscription fee.

See the workflows: deliver.media will demonstrate these applications at IBC2026, stand 8.A57, at RAI Amsterdam from 11 to 14 September 2026.









TAKE YOUR SHOT AT GREATNESS

Greatness starts with ambition—the drive to go further. HPE turns passion into performance on the pitch and beyond. **Unlock ambition.**

HPE

Visit HPE.com

DIGITALJOY

EVERYONE HAS A STORY

NEWSROOM

Less Friction. More Journalism.

Story first NRCS Built natively on AMPP — seamless by design.

Finley creates multiple story versions to be distributed across platforms.

INSIGHT

Control Your Costs Across Your Business.

A modern finops platform that monitors Cloud, SaaS and AI cost, usage, and consumption. Purpose built for media companies.

Finley converts fragmented usage and cost data into actionable insights.

The Future is Assisted Intelligence

Finley, our AI support dog, puts actionable data and better information in the hands of the people who can use it best—helping them make smarter decisions, work more efficiently, and focus on what they do best.

Stop by the booth!
Finley's got swag and we've got demos.

Come see the latest in NRCS technology (Newsroom) and learn more about our finops platform (Insight).

Learn more: **digitaljoy.media**

Find us at the **GV Booth Hall 9.A01**