Expert Insights

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AI fast-forwards video for sports highlights

Innovation and hyper-personalized user experiences let broadcasters engage with viewers like never before

IBM **Institute for Business Value**

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The true game-changer for video is the hyper-personalized user experience that wouldn't exist without AI.

Talking points

Using machine learning and visual recognition to enrich the fan experience, AI ups the game for sports highlights
AI uses learned cues to analyze and choose which televised sporting moments to package into videos for various audience segments, freeing up editorial teams to focus on other content.

Broadcasters will have new conversations with their audiences, and become platforms for fan and market engagement
Both advertisers and telecom companies investing in sports rights will turn to AI to differentiate bundled packages of broadband, landline, mobile phone, and TV contracts.

Beyond sports, doing new things with video content creates new ad opportunities
Video enrichment can help grow viewer engagement and ad revenue by creating personalized recommendations that are more detailed and searchable than large libraries of video.

Spanning the globe for a constant variety of sports data

Imagine the manual workload broadcasters undertake to compile 10-minute recaps of the dozens of live sporting events taking place daily all over the world. Then, factor in what the human eye misses. People can't possibly catch every play, pitch, goal, fumble or flag.

Highlights, whether sports, film or television, are the fastest growing segment of video, with the enterprise video market expected to grow to nearly USD 20 billion by 2023.[1] Aiming to grab more of that burgeoning market, content creators can use artificial intelligence (AI) to analyze massive amounts of video and data.

Keeping an eye on the ball

At events the magnitude of the Wimbledon Tennis Championship or FIFA World Cup, AI-enabled video can deliver stats and results faster than a production crew by leaps and bounds. Wimbledon installed an AI system in 2017, delivering highlights 15 minutes faster and resulting in 14.4 million views of video content with no human intervention.[2] AI gathers and analyzes data courtside, taking cues from an ace at 100 mph, spotting reactions by spectators, and using visual action recognition to work out which moments to keep for the highlights reel and which to discard (see Figure 1). In 2018, the official Wimbledon website was redesigned to better connect with fans worldwide, including the launch of a Facebook Messenger chatbot.[3]

AI should be considered as a key ingredient of a media and entertainment marketing strategy as part of a scalable, automated, and personalized digital content business model.

AI speeds and simplifies the video highlights process using:

- *Point selection.* To weigh which plays to include in a highlights video, visual recognition APIs rank signs of celebration, such as fist pumps or arms raised in victory after a winning a point.
- *Clipping and fine-tuning.* A time limit is applied to clip length based on data analytics, including time stamps when points start and end. Visual recognition can also detect content that isn't play, such as wide shots of the crowd, to be edited out.
- *Production.* Storytelling graphics and watermarks are added before clips are merged in a reusable industry format and handed off to production.
- *Distribution.* Once content is approved, it's distributed to digital editors for publishing and websites, mobile apps, and social media.

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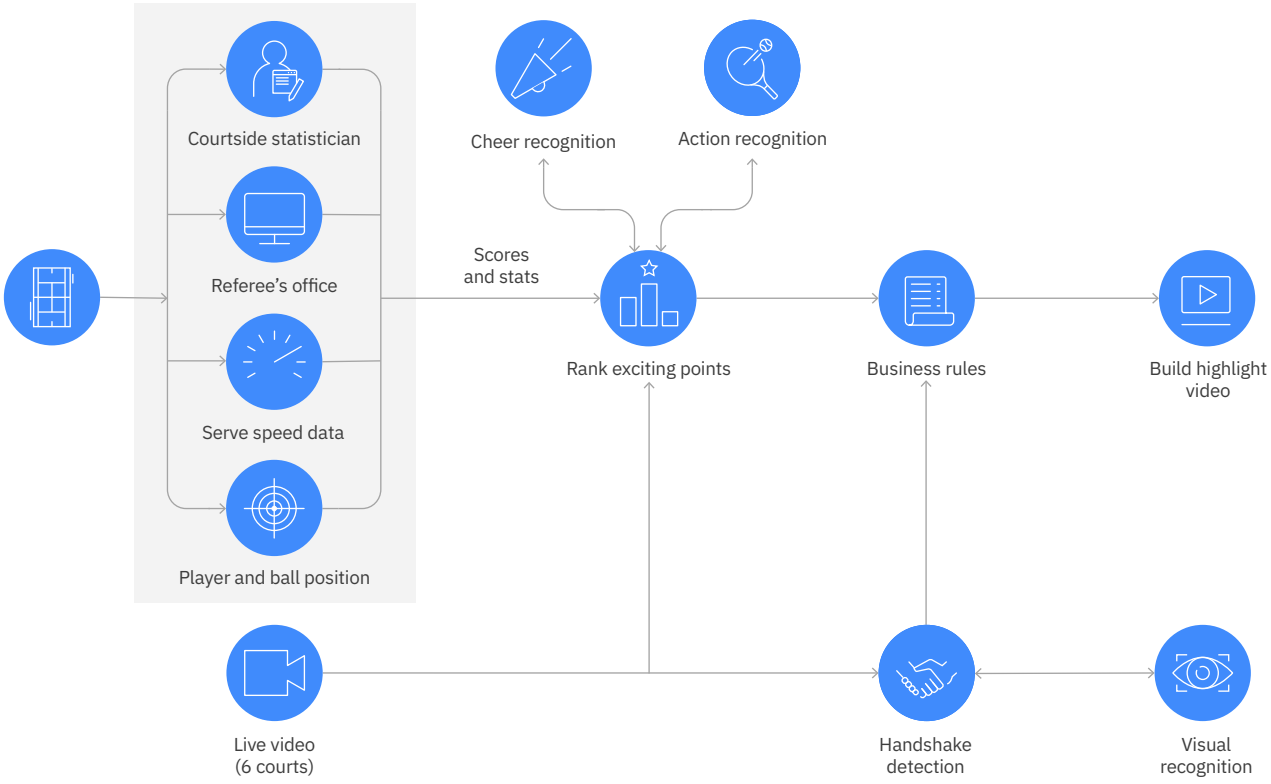
Figure 1

Wimbledon AI video highlights workflow



Source: IBM Institute for Business Value.

Breakthrough fan and market engagement

At the 2018 FIFA World Cup, FOX Sports launched an AI-based platform for fans to create and share their own customized soccer highlight videos.[4] Fans could browse and filter FIFA's archive of past and current matches by year, team, player, and type of gameplay, such as penalty kicks and goals.[5] The interactive platform then analyzed and compiled footage in seconds, at the user's command.[6] To keep post-match conversations going, fans could title, save, and share their creations across email, text, Facebook, and Twitter.[7]

Creating personalized sports highlights according to one's preferences can mean curating content based on a tournament, a team, favorite players or certain plays. Other dimensions of preferences might be considered, like time spent watching and the type of devices preferred by the viewer, whether a five-inch handheld or a large screen. Preferences can also be dynamically discovered based on viewing behavior of pausing, replaying, and fast-forwarding content.

With the ability to have new conversations with its audience, broadcasters become a platform for fan and market engagement. Advertisers will take notice, as will telecom companies investing in sport rights to differentiate "quad play" bundled packages of broadband, landline, mobile phone, and TV contracts to increase customer loyalty and average revenue per user (ARPU).

For over-the-top (OTT) content provided over a high-speed internet connection, innovation enabled by AI can help grow and retain clients. Auxiliary engagement channels, such as widgets or mobile apps, can drive ad inventory by creating relevant, contextual fan experiences that resonate with an advertisers' message. In an ad-funded sports model, this experience creates ad slots that can be monetized.

Capturing moments at the Masters

One of the major championships in professional golf, the Masters Tournament uses AI to curate personalized highlight reels. "My Moments," found on the Masters website and mobile app, pulls together highlight packages for fans based on the players they've identified as favorites. Clips are assessed and analyzed by sound, player gestures, and emotion; natural language processing seeks out excited verbal queues in broadcast commentary. Highlights are scored and indexed, giving fans quick access to the custom content they want to see.[8]

When Watson went to film school

IBM scientists collaborated with American film studio 20th Century Fox to create the first-ever AI movie trailer for the 2016 sci-fi thriller *Morgan*.[9] Using IBM Watson™ APIs and machine learning techniques, the system analyzed the trailers of 100 movies in the horror and thriller genre. Watson was then fed the full-length film and programmed to make a trailer based on what perceived fear looks and sounds like, and provided the filmmaker a total of 6 minutes of footage. The traditional process to create a movie trailer can take days.[10] But the AI-built trailer only required about 24 hours from the moment the system first watched *Morgan* to final editing.[11]

Expanding the value and performance of video

Beyond sports, AI can help drive consumption of digital content by making it easier to classify and find. Whether from a subscription streaming service, such as Netflix, or an-ad funded model, the manner in which content is presented matters to consumers and how they choose to engage with it—or not.

Video enrichment looks deep into multimedia content, using AI to analyze audio, text, and visual data, then builds searchable metadata packages for every asset. By creating personalized recommendations and automated data sets that are more detailed and searchable than large libraries of video, video enrichment can improve content discovery and grow viewer engagement and ad revenue.[12] Most everyone wrestles with endless menu options when looking for something to watch on streaming video services. The choices offered across platforms are overwhelming. AI and personalization have the potential to help viewers find content they want regardless of platform by pulling content from all sources, be they Netflix, Amazon Prime, HBO, or iTunes. For traditional multichannel video programming distributors (MVPDs) and cable operators, using analytics and AI to understand cloud DVR patterns can create personalized offers and help improve churn.

Intelligent systems can learn about viewing behavior to understand what the user likes to watch. When combined with technologies like facial recognition—such as using a front-facing camera on a laptop—the system can understand the emotional state of the viewer based on physical reaction and other cues. It would then recommend videos the viewer would most likely enjoy watching, leading to highly personalized media recommendations.

Using machine learning capabilities, AI can also automate and simplify the process of caption generation and subtitling—delivering accurate, compliant, and easily editable video captions—and bring simultaneous translation to live television broadcasts and on-demand video content.[13] Broadcasters can reduce the time it takes to air accurately captioned news so that communities get the most value out of their programming. And the solution learns over time to improve accuracy rates.

While AI can't fully equate the human touch creatively, it can optimize workflows and media processes to gain more value from content.

Prepare for a future video experience driven by data

As costs to acquire sports rights increases, and with a greater half-life for engagement, video content providers need even more approaches to monetize content. AI-assisted video highlights can actively engage with viewers and help extract more value from live sports content by offering personalized experiences at scale. While AI can't fully equate the human touch creatively, it can optimize workflows and media processes to gain more value from content.

A more nuanced understanding of what makes digital content appealing can help providers improve their cost and benefit analysis, make more informed decisions about what kind of content to create or acquire, and ultimately improve customer usage and satisfaction.

But AI is only as good as the robust architecture that supports it. AI requires machine learning, machine learning requires analytics, and analytics requires the right data and information architecture (IA). The entry points vary, but most organizations build out an enterprise AI environment by first getting their IA in order. To do so, embrace three distinct foundational areas of technical advancement:

1. Hybrid data management that provides a platform to manage all data types, across all sources and destinations.
2. Unified governance and integration to make data easily and securely available across cloud platforms.
3. Combined data science and business analytics for holistic and collaborative analysis of all data types to extract meaning from complex data sets.

Key questions to consider

» How could you use AI to optimize your media processes? What key repetitive media content processes could you replace with AI?

» Which new interactive experience could you create leveraging the content rights that you have? In what ways could you use net promoter scores to gauge the loyalty of your customer relationships and decrease churn in content service?

» What is your plan to use AI to increase consumer engagement with your content?

About Expert Insights

Expert Insights represent the opinions of thought leaders on newsworthy business and related technology topics. They are based upon conversations with leading subject matter experts from around the globe. For more information, contact the IBM Institute for Business Value at iibv@us.ibm.com.

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