

Engage your audience
with machine learning-
powered experiences

How machine learning is transforming
the media and entertainment industry



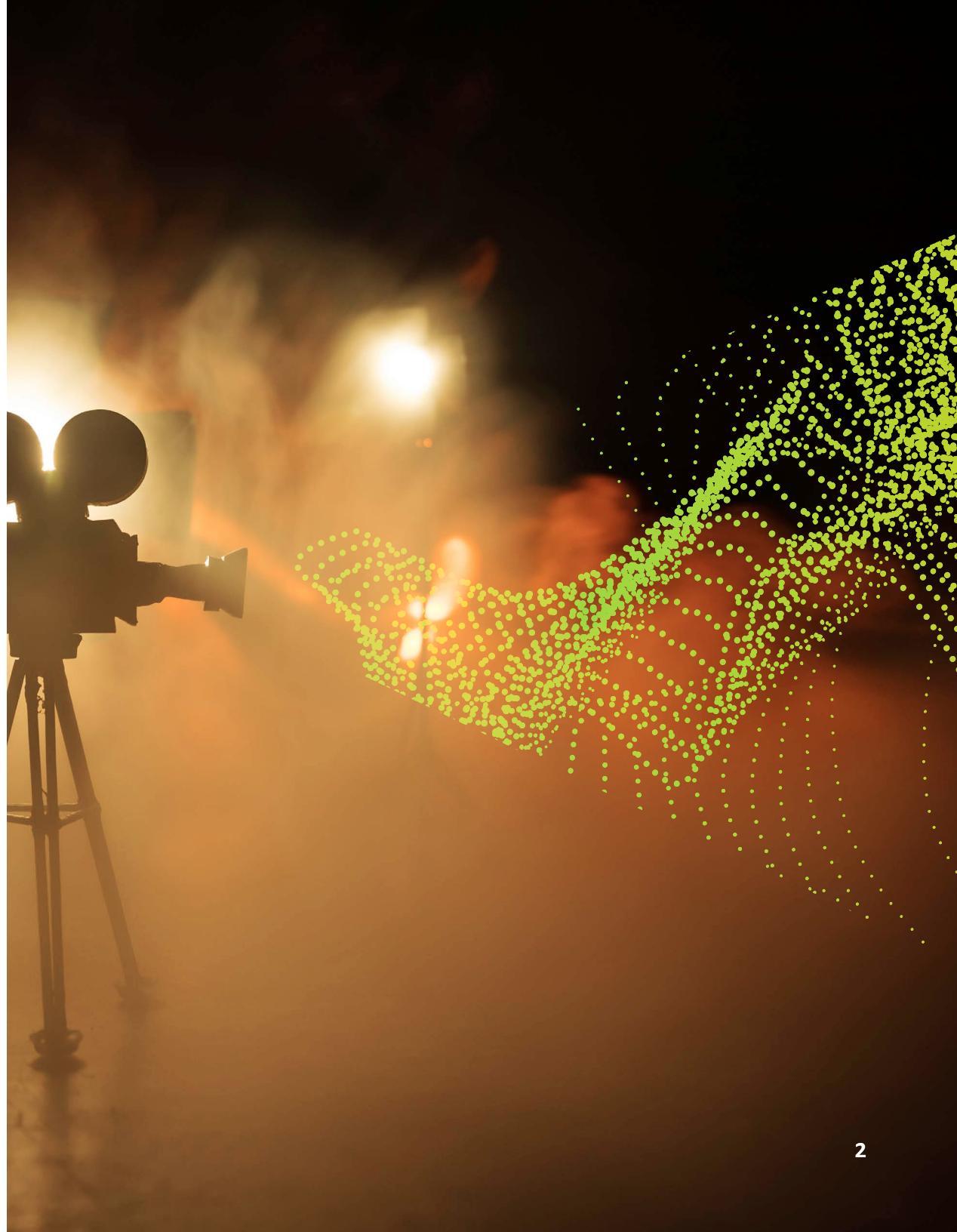
Meeting big expectations

The Media and Entertainment (M&E) industry is growing at a staggering pace, with customers consuming more content than ever before. According to PwC's Global Entertainment & Media Outlook, global revenue from over-the-top (OTT) video is projected to grow at an annual rate of close to 15 percent through 2024. The markets for many other media segments—including virtual reality (VR), video games, internet and out-of-home (OOH) advertising, music, radio, and podcasts, and digital books—are all expected to grow, as well.¹

The distinctions between print and digital, video games and sports, pay TV and over-the-top OTT, and social and traditional media are blurring. Consumer expectations for nearly endless content choices anytime, anywhere, and on any screen are driving business and operational changes. To succeed in this new environment, M&E companies need to deliver premium content in a cost-effective manner to an audience that is engaged with the brand.

In this eBook, we'll demonstrate how your company can achieve these goals through machine learning-powered solutions—and provide examples of other businesses in your industry that are creating fascinating, captivating experiences with machine learning today.

¹<https://www.pwc.com/gx/en/industries/tmt/media/outlook.html>





Challenges that M&E companies are facing

To remain successful, today's M&E companies must find innovative, cost-effective ways to overcome a number of challenges.

Respond to new business models

Consumer behavior toward subscription and one-off content purchases keeps shifting, making it difficult to sustain any one revenue model. You may need to look at entirely new ways to drive direct-to-consumer approaches for growth.

Overcome competitive pressure

The competition for consumer attention has never been fiercer. Startups are challenging long-standing norms, established media companies are investing in new revenue models and fine-tuning customer experiences, and powerful players from other industries are entering the fray with original content and licensing deals. No matter where your company stands, it's hard to keep pace—and it's only getting harder as audiences gain more options for content.

Scale internal processes

Manual processes such as finding where end credits begin, choosing the right spots to insert ads, or breaking up videos for better indexing are expensive and slow. They also cannot scale to keep up with growing content volumes.

Create new consumer experiences

Consumers are increasingly expecting new forms of media to engage with and new ways to consume content. Meeting these demands requires rapid innovation at scale. Many companies are looking to personalization as part of the solution, as personalized content has a higher chance of being consumed and leads to longer engagements.

Using machine learning to address these challenges

From video and music streaming to internet advertising and sports, machine learning is playing a key role in accelerating content creation and curation processes, increasing consumer engagement, and improving monetization options for M&E companies.

Let's take a look at a few introductory examples of how machine learning is enabling positive business outcomes for M&E. We'll provide more specific use cases in the next sections.

Videofashion, the world's largest fashion video licensor, uses [Amazon Rekognition](#) to automatically index over **18,000 hours of fashion footage** and catwalk coverage for its archive of 3,000 programs. It is now easier to search content and drive revenue—all while reducing the time required to analyze, identify, and tag content by 88 percent.²

RBmedia, a global leader in spoken audio content and digital media distribution technology, uses [Amazon Personalize](#) to tailor recommendations and help millions of customers find their next digital book.³

Pulselive, a digital media sports company, uses Amazon Personalize to enable its customers to create highly personalized recommendations for online sports media content. One of Pulselive's clients, a premier European football club with millions of global fans, used Amazon Personalize to immediately increase video consumption by 20 percent across its website and mobile app.³

² <https://aws.amazon.com/blogs/media/extracting-value-from-video-archives-using-ai-videofashion-case-study/>

³ <https://aws.amazon.com/personalize/customers/>



Improving customer experience

Machine learning enables you to more accurately measure and predict consumer actions and intent, helping you keep customers engaged and give them more of what they want.

Personalized content recommendations

Personalization helps deliver real-time, curated, omnichannel experiences that today's consumers expect. Machine learning is helping by analyzing disparate data in ways that can predict consumer behavior and provide customers with personalized content choices.

Content moderation, compliance, and quality control Machine learning enables you to moderate user-generated content at scale, enabling automatic detection and censoring of inappropriate content. It can also detect and, as a result, pixelate faces captured incidentally to preserve personal privacy, such as in newsfeeds and security footage.

Increasing fan engagement

You can use the predictive powers of machine learning to create new and unique ways to engage your audience, enabling your fans to feel more like they're inside the action.

To remain competitive, today's M&E companies need to personalize content for all users—even those who are just signing up. With [Amazon SageMaker](#), [iHeartMedia](#) analyzes registration info to create a personalized listening experience in real time, reducing churn and improving the user experience.⁴

CBS was relying on manual methods to execute near-real-time screening and editing of hundreds of hours of content every month. Today, CBS uses Amazon Rekognition to automate the labeling of video content and the tagging of sensitive content—**speeding up video processing from hours to minutes.**⁵

During each **Formula 1** race, 120 sensors on each car generate 3 GB of data, and 1,500 data points are generated each second. Formula 1 uses Amazon SageMaker to help transform that data into insights that fascinate its 500 million global fans—from **real-time predictions of race outcomes** to calculating the chances one driver will overtake another.⁶

⁴ <https://aws.amazon.com/blogs/machine-learning/real-time-music-recommendations-for-new-users-with-amazon-sagemaker/>

⁵ <https://aws.amazon.com/rekognition/video-features/#Customers>

⁶ <https://aws.amazon.com/solutions/case-studies/formula-one/>

Optimizing internal processes

Machine learning helps streamline a number of internal processes, allowing you to reduce costs, increase productivity, and focus more attention on your customers.

Media analysis, metadata generation, and tagging

By automating the creation of a rich metadata index, machine learning can help you better manage your increasing volume of content. With a machine learning-powered digital and media asset management system, it's easier and more cost-effective to deliver specific content in shorter time frames and across a greater number of formats.

NASCAR enhances metadata with Amazon SageMaker, Amazon Rekognition, and [Amazon Transcribe](#), saving thousands of hours of manual search time and serving up more relevant video to fans. AWS Machine Learning helps NASCAR deliver more content, innovate new services more efficiently, and scale without compromising time and capital.⁷

Media subtitling and localization

Machine learning helps to automate the creation of subtitles, captions, transcriptions, and translations of content, reducing the number of work-hours needed to complete these otherwise labor-intensive tasks.

SyncWords, an AI-powered service that provides automated captioning and translations, uses [Amazon Translate](#) to deliver real-time translation and multilingual subtitles to live broadcasting in 40 languages. The speed and efficiency of the AWS solution enables SyncWords to provide these services at 75 percent lower costs and with lower latency.⁸

Scene understanding

Machine learning can identify actors, players, and animated characters - give customers the ability to automatically clip to save editing time.

Disney is using deep learning on AWS to understand scenes in animated content, enabling creators to quickly search content using natural-language queries. The company is also using the resulting metadata for personalization, delivering increasingly relevant content to users.⁹

⁷ <https://aws.amazon.com/blogs/media/vroom-nascar-puts-fans-in-the-race-with-aws-media-services/>

⁸ <https://www.syncwords.com/blog/syncwords-delivers-subtitling-with-real-time-translation-in-40-languages-to-facebook-live/>

⁹ <https://aws.amazon.com/machine-learning/customers/innovators/disney/>



Marketing and monetization

Finally, machine learning automates and improves marketing —while helping you discover and adopt new methods of monetization.

Ad personalization and optimization

With machine learning, you can deliver personalized and optimized ads into subscriber video streams based on viewing patterns and other signals.

Browsi a platform that enables digital publishers to automatically optimize ad placement, [TensorFlow](#), a popular open-source deep-learning framework, on Amazon SageMaker to predict the probability of an ad placement being viewed in real time. These insights allow publishers to optimize ad distribution, helping ensure the **right ads** are delivered to the **right audiences** at the **right times**.¹⁰

Enhanced monetization paths

Machine learning helps to surface relevant content into monetized media paths—while preserving a great consumer experience.

With TensorFlow on Amazon SageMaker, **News Corp Australia** Australia's largest media company with a monthly audience of over 16 million, uses TensorFlow on Amazon Sagemaker to predict the number of incremental subscriptions a news story will generate. This helps the company more intelligently determine what content should live behind a paywall.¹¹

¹⁰ <https://www.youtube.com/watch?v=r79IRtHAhG8>

¹¹ <https://aws.amazon.com/solutions/case-studies/news-corp/>

How AWS can help

With tens of thousands of customers, more machine learning happens on AWS than anywhere else. From the largest enterprise companies to the most innovative startups, AWS provides the broadest and deepest set of machine learning services for M&E companies.

Add intelligence to your applications with pre-trained AI services—no machine learning expertise required.

We offer solutions for:

- Personalized recommendations [Amazon Personalize](#)
- Computer vision [Amazon Rekognition](#)
- Natural language understanding (NLU) [Amazon Transcribe](#), [Amazon Translate](#), [Amazon Polly](#), [Amazon Comprehend](#)
- Enterprise search [Amazon Kendra](#)
- Fraud detection [Amazon Fraud Detector](#)

Accelerate machine learning with Amazon SageMaker

[Amazon SageMaker](#) helps data scientists and expert practitioners quickly build, train, and deploy machine learning models at scale—or build custom models with support for all the popular open-source frameworks, such as TensorFlow, PyTorch, and MXNet.

Leverage solutions purpose-built for M&E

Use the right tool for the right job with purpose-built, easy-to-deploy solutions optimized for M&E workflows, including [AWS Content Analysis](#), [Media2Cloud](#), and [Media Insights Engine](#).

Most comprehensive and secure cloud platform

The AWS Cloud provides unmatched support for your machine learning workloads across data store, security, analytics, compute services, and more. We offer more than 500 features and services focused on security and compliance, including certifications for IT industry standards such as ISO 9001, 27001, 27017, and 27018.



How do I get started?

AWS makes it easy for your business to start, expand, or accelerate its machine learning journey. We offer a range of professional services and training programs that let M&E companies like yours tap into our experience to succeed in your machine learning initiatives.

[AWS M&E partners](#) can provide you with guidance through every step of your machine learning journey.

[Machine Learning Embark](#) helps you and your team create a strong foundation through training, onboarding, and implementation support. You can also partner with Amazon experts to build new solutions for your business at the [Machine Learning Solutions Lab](#)—which has helped companies like Formula 1 and the NFL succeed with machine learning.

And you can quickly train your developers, data scientists, or anyone who wants to build their skills by following the [AWS Training and Certification learning path for machine learning](#) as well as through [training courses in our media services learning path](#). You'll learn from the same curriculum we use at Amazon, and many courses are available on demand and for free.

AWS machine learning solutions are helping to fast-forward innovation in the M&E industry, delivering highly personalized and deeply engaging customer experiences at scale. Find out how machine learning can transform your business today.

[Learn more about AWS machine learning for M&E »](#)

