



The Show Goes on in the Cloud

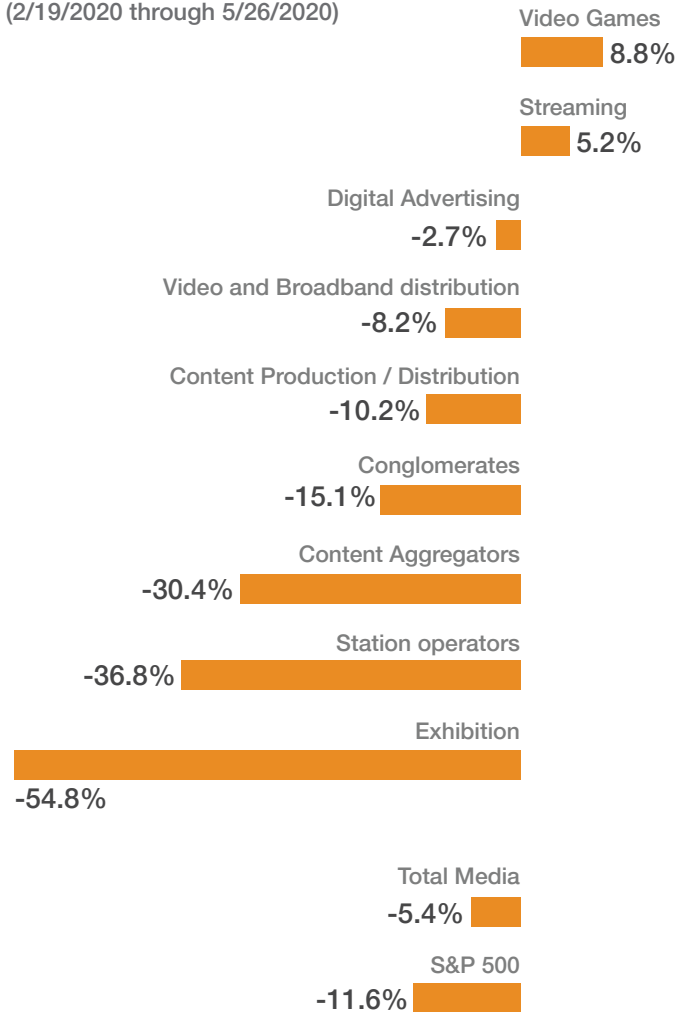


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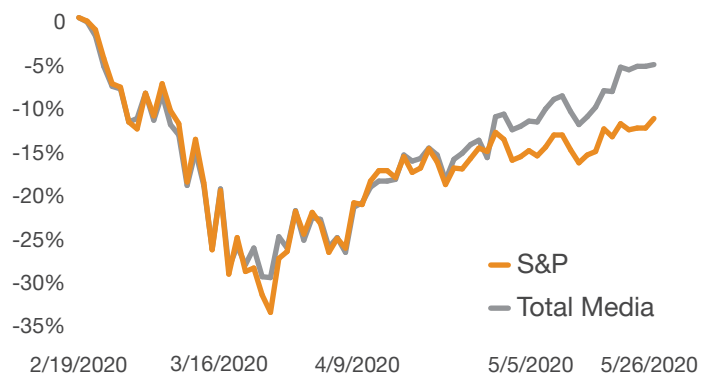
PwC and Microsoft are turning the lens on the media and entertainment industry during a pivotal moment in time. While the industry has certainly been shaken by COVID-19 and its economic repercussions, it is poised to potentially emerge stronger than ever. In this report, we use data and case studies to demonstrate what is driving the industry to embrace digital transformation and how it is positioning itself to take advantage of an array of emerging technologies in the cloud to power remote work, produce higher quality content, streamline operations and invent new business models. The industry's future will be bolstered by the cloud, enabled by analytics, and funded by cost savings and innovations in post-production, marketing, and distribution.

COVID-19 has upended the media and entertainment industry, stalling operations in some subsectors, and creating opportunities in others. Benefiting from captive crowds, streaming and gaming investors have seen shareholder return increase by 5.2% and 8.8%, respectively. In contrast, the under-delivery of episodic content could result in over \$3.5 billion in lost ad revenue for broadcasters. Exhibitors are facing solvency concerns due to shuttered theaters, while studios have had to shift release dates and their distribution strategies. Major sporting events were canceled or postponed, including the Olympics. All told, the public companies in the media and entertainment industry have experienced a -5.4% shareholder return since February 2020.

Total shareholder return
(2/19/2020 through 5/26/2020)



Total shareholder return
(2/19/2020 through 5/26/2020)



Source: Capital IQ 2020, PwC Analysis

COVID-19 is catalyzing cloud innovation

Cost awareness is at the top of CFOs' minds. According to PwC's COVID-19 CFO Pulse Survey, 80% are implementing cost-containment measures to weather the current economic storm. To reduce costs, industry executives are now looking at the cloud as a key driver for operational efficiencies (e.g. digital media asset management) and workforce transformations (e.g. embracing new cloud-based collaboration tools).

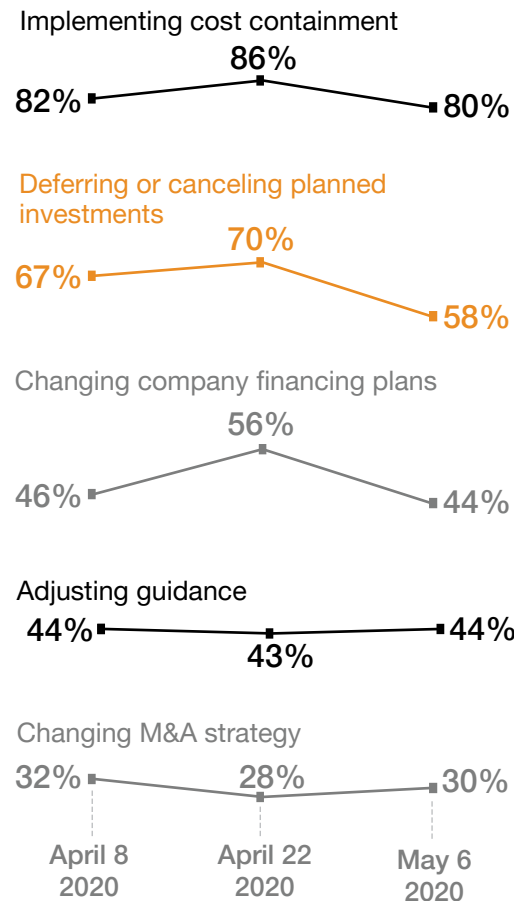
With a COVID-19 double-digit billion-dollar hit to the media and entertainment sector in 2020, PwC's clients are focused on driving innovation and efficiency into the entire ecosystem through intelligent cloud transformation, according to Mark Borao, Partner, PwC.

There are examples across the board that are powered by the cloud. Some studios went straight to streaming. A film festival stood up their event in the cloud. Other production companies and commercial advertising agencies leveraged cloud technologies to keep their employees safe and productive. Digital advertisers are enhancing their strategy to embed e-commerce into content, further proving their value and putting more pressure on print advertising agencies to demonstrate ROI. Lastly, entertainment companies are digitizing their data to gain a 360-degree view of customers to stay close to them in this socially distant environment.

"Some of the best-kept secrets on Microsoft's Azure cloud computing platform are around AI [artificial intelligence], machine learning, IoT [internet of things] enablement, 5G, edge, and cognitive services," said Borao. "With these technologies, media and entertainment businesses can automate routine and cognitive capabilities to support front, middle and back-office processes. This type of innovation can drive double-digit efficiencies by permanently removing SG&A out of your operating model."

For example, PwC and Microsoft recently partnered on a project to help a media and entertainment client use the intelligent cloud to streamline their back-office processes. The client was spending enormous amounts of time sifting through invoices in an attempt to capture expense information and compare it to contract data in order to issue an expense forecast for the next fiscal period. Leveraging Microsoft Cognitive Services capabilities, the process of extracting, interpreting, processing, and creating the journal entries for the accrual was completely automated. The removal of manual work resulted in significant ROI and increased forecast accuracy.

Which of the following financial actions is your company considering as a result of COVID-19?
(Select all that apply.)



Source: PwC COVID-19 US CFO Pulse Survey. April 8, 2020: base of 313; April 22, 2020: base of 305; May 6, 2020: base of 288.

Remaining relevant requires enabling remote work

On the surface, the media and entertainment industry appears to be in a state of suspended animation due to disruptions caused by the pandemic and social distancing. Behind the scenes, however, media and entertainment companies are deploying innovative approaches to keep employees working remotely and content flowing.

“With tremendous change and disruption stemming from COVID-19, we are seeing momentum within media and entertainment toward automation and cloud migration across all parts of the value chain — content creation, collaboration, delivery, and monetization,” said Bob De Haven, General Manager of Media and Communications Industry, Microsoft.

Many firms are turning to collaboration tools such as Microsoft Teams, which has experienced a 70% jump to 75 million active daily users, and all major production houses are transitioning to the cloud in one way or another. When the NFL Draft was hanging in the balance due to social distancing, the NFL relied on Microsoft Teams to facilitate behind-the-scenes communications regarding draft selections. To remain relevant, according to Jennifer Cooper, global head of Media and Communications Industry Strategy and Solutions for Microsoft, the industry is enabling a distributed workforce to work remotely and reimagine and reconfigure everything — from how content is created to how it affects the lives of consumers.

“The disruption created by COVID-19 has agitated the industry into accelerating innovation and digital transformation in areas that were previously only in planning stages of cloud migration,” Cooper added. “The stage is set for an industry-wide metamorphosis.”

The show must go on...and it is. It’s just happening in the cloud.

In this report, we will address:

- Laying the groundwork for a cloud migration
- Harnessing AI to optimize the digital supply chain
- Using the cloud as an organizing force to coalesce distributed workers
- Staying connected to customer sentiments in a social distancing environment

"...COVID-19 has agitated the industry into accelerating innovation and digital transformation..."



Moving from the silver screen to the digital stream

The media and entertainment industry is rooted in ritual, from how movies are made to how fans are engaged to how ads are created. Writers pack tightly into rooms to brainstorm content; video editors huddle around the same screen to catch inconsistencies during reviews of dailies; advertising agencies use returns on coupons to prove the value of ads; makeup artists leave no imperfection untouched; armies of carpenters create elaborate sets; finished pieces of content are handed off via thumb drives; and blockbuster movies traditionally hit the silver screen before the digital stream.

These idiosyncrasies and inefficiencies swiftly became liabilities and limitations once social distancing set in. Outdated manual processes and mindsets are proving impossible to maintain. For example, the closure of movie theaters set in motion a need of going straight to streaming to see that audiences were not deprived of much-anticipated titles and the financial impacts of lost ticket sales could be offset.

“Entertainment companies will increasingly distribute content that matches up with how consumers want to consume it,” said Phil Regnault, Partner, PwC. “Some movies warrant the big screen...and others are best consumed bite-sized. With real-time insights and the ability to pivot faster, cloud infrastructure will enable content producers to put the consumer at the center of their decisions.”



Breaking free of legacy systems to unleash the cloud

According to PwC's COVID-19 CFO Pulse Survey, 70% of CFOs in the technology, media and entertainment (TMT) industry plan to reconfigure worksites to promote physical distancing as they transition back to on-site work. With employee safety being a priority, M&E executives are viewing the cloud's boundless possibilities in a new light. Major production studios are shifting production to the cloud, which will enable the industry to produce more creative content at a quicker clip and a lower cost by increasing collaboration, boosting efficiency, and enhancing security.

According to Hanno Basse, CTO of Microsoft Azure Media and Entertainment, content production in five to ten years is not going to look like anything it has before. Digitization will lead to more people creating higher quality content, enabled by cost reductions and diverse global talent.

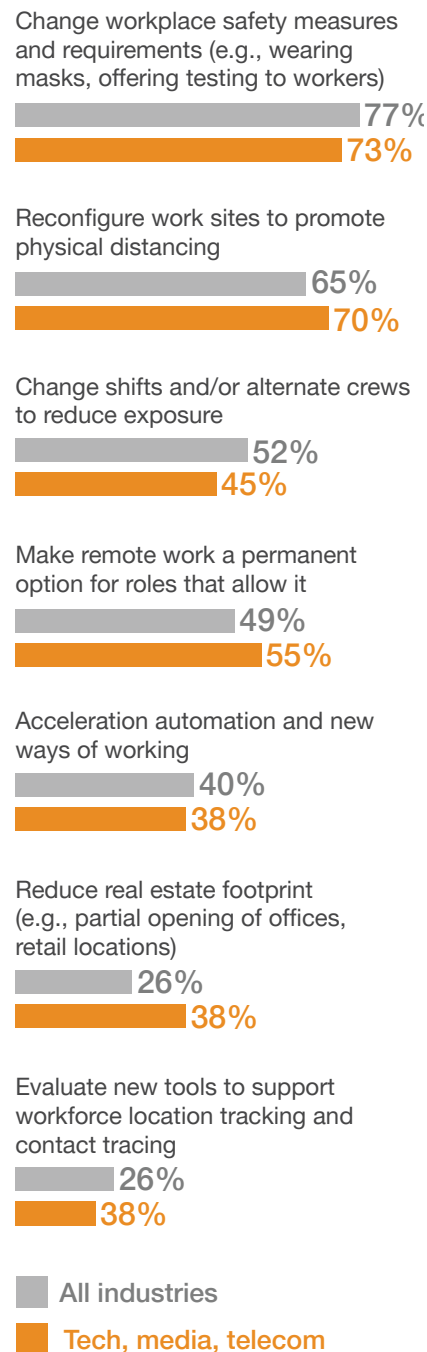
Before the industry can tap into the capabilities enabled by the cloud, it has some groundwork to do, according to Microsoft's Mark Miller, who leads a team of Azure engineers. Despite creative collaboration, industry workflows are highly fragmented and many businesses are not completely set up for virtual work environments. Legacy systems are not yet end of life and most M&E businesses cannot pivot on a dime, even when the moment demands it.

"This is a cost-conscious industry that rightfully caters to the creative side," said Miller. "There's a learning curve for the industry to create an operational experience in the cloud that is comparable to on-premise."

According to Miller, the industry is experiencing hurdles meeting expectations related to costs and user experience, while balancing the need for innovation and standards. Companies that want to take full advantage of the cloud's promise need to make structural and cultural changes, and that won't happen overnight.

"What's different now is the willingness of companies to put aside the optional," said Miller. "COVID-19 — like every crisis — has brought what is important sharply into focus."

Which of the following is your company planning to implement once you start to transition back to on-site work?



Source: PwC COVID-19 US CFO Pulse Survey. April 22, 2020. Total base of 305; TMT base of 60.

Optimizing the content production value chain

While the media industry has managed to keep reporters on air during the pandemic, they still have a long way to go to foster a frictionless environment that is conducive to remote work.

According to PwC's Regnault, content producers along the pipeline still use disparate systems that complicate content production when speed is of the essence. Media outlets need a single view of internal and external news and social media sources. They need to enhance internal search systems and simplify content submission to support more remote work. The stakes are sky-high. Reporters are scattered in far-flung locations, and news happenings are in a constant state of flux.

"Using the cloud as an organizing force, media companies don't have to choose between being first or being right," said Regnault.

Forward-thinking companies are already taking advantage of machine learning to reduce costs and boost the bottom line. As an example, before a film is released for airplane viewing, any potentially offensive scenes and dialogue must be edited out to account for a passenger's neighbors. The industry has been doing this manually, but with Microsoft's Video Indexer, entertainment companies can "train" AI to detect scenes that need to be removed. Additional efficiencies can be gained to prepare content for publishing to streaming platforms by expediting the editorial process and improving content accuracy (e.g. closed captioning and celebrity identification).

There are limitless amounts of content being offered and a strong user experience hinges on viewers being able to easily find exactly what they are looking for – even more so than the casual browsing experience. The Video Indexer enables search indexes based on content metadata to enhance a customer's streaming experience. Using nothing more than a movie quote, streaming platforms can give their consumers the ability to navigate through a sea of content.

Entertainment companies can "train" AI to detect scenes that need to be removed



Shifting to the cloud to push stories to the screen: Technicolor case study

The mandate that employees work from home had an immediate impact on the post-production supply chain. A lot of businesses simply were not prepared to empower employees to work remotely and with such immediate urgency. In fact, 47% of TMT CFOs anticipated lost productivity due to the lack of remote-work capabilities.

Technicolor addressed the challenge its industry peers were facing with PULSE, a centralized and collaborative software solution that acts as a file manager, and digital vault as well as file delivery system for all stakeholders. It only took four days for Technicolor to work with their partners, like Microsoft, to help their clients prevent delays in content delivery.

“Utilizing Technicolor PULSE as a software solution, a production’s data is self-manageable, searchable, and can be accessed from anywhere in the world,” said Brady Woods, Vice President of Global Account Management for Technicolor. “As the need for remote workflows has now become a necessity, the industry understands more than ever before the need for centralized storage and we are proud to be providing next gen tools to make cloud-based collaboration key to a production’s pipeline.”

Technicolor’s foresight into the importance of having a centralized, secure, and seamless workspace is giving them an edge over boutique players when it couldn’t matter more.

“We are setting our sights on continuing to create tools for a Technicolor virtual workspace which will support the entire ecosystem — from moving files captured on set into the cloud, and having PULSE as the front-end engine. These advancements will reduce the time and cost of cloud workflows to further the enablement of digital artistry from anywhere, while maintaining the artistic collaboration, which is essential to great content creation,” states Technicolor Post Production COO, Massimo D’Avolio.

Due to the new challenges of traveling for on-location shoots, visual effects companies like Technicolor VFX will see an even greater demand for their services. Big productions will prioritize providers that can operate safely and remotely without sacrificing creativity and security. As demand increases for computer generated location backgrounds, scenes, and crowds; visual effects companies who are set up to operate in the cloud will benefit from the flexibility it offers for years to come.

“This pandemic has expedited a willingness to adopt cloud-based technologies. Through our developments, and in collaboration with 3rd party technologies, we have laid the building blocks of a self-service platform that could reimagine how data is transported and how artists collaborate,” concludes D’Avolio.



Chattanooga Film Festival: A stage for filmmakers in the cloud

When COVID-19 hit, ticket sales to the Chattanooga film festival went quiet. Independent film creators watched their passion projects go up in flames. To help ensure that the show went on, Microsoft worked with the festival's producers to use the cloud and Microsoft Teams as a staging ground to feature the artists' work.

"You can't just take a physical event and stand it up in the cloud and call it a day," pointed out Microsoft's Marco Rota, who led the digital transformation charge for the event. "You are creating something brand new from scratch. It's an entirely new distribution model."

Difficult decisions had to be made regarding ticket sales, distribution agreements, and data management.

For example, other online events were billed as free and unlimited. The Chattanooga festival decided to charge for tickets and limit attendees to 30,000. The decision paid off. With production sets shut down, distributors clamored for early access to the digitally revamped festival with hopes of winning distribution rights to the festival's biggest hits.

The festival producers also had to reach a consensus on how long the event would live online, taking into account the wishes of production houses. The decision? After four days, it disappeared from the web.

What won't dissipate are customer sentiments. Analyzing title engagement data could reveal which movies performed well and why, as well as who watched them. Going forward, you'll likely see production houses using these insights from online film festivals to shape decisions about direct-to-consumer contracts.

Ultimately, the cloud did more than give the filmmakers back their voice. It enabled them to expand their presence to broader international audiences, distributors, and advertisers.



AI & analytics: demonstrating ad value

If this recession is similar to the 2008 Global Financial Crisis, advertising spend could drop 10% to 15%, driven down primarily by print. While the need to show ROI in ad spend has been a goal since the inception of advertising, the accelerated pivot to digital media and entertainment driven by COVID is a game changer. Ad dollars follow consumer time, and consumers in this environment are largely at home, and on their devices consuming digital content. The opportunity to better understand and evaluate the efficacy of ad spend in this environment given the completeness of digital footprints is changing the nature of valuing ads. The current crisis has thrown gasoline on the fire, according to CJ Bangah, principal at PwC.

As marketers pull back their dollars, there's more pressure than ever for advertisers, even tech-enabled ones, to provide an unshakeable business case for ad buys. Tracking a customer's journey from the point at which they see an ad all the way through until they make a purchase — is the holy grail for advertising agencies, but remains out of reach for firms which have resisted the adoption of new technologies, like the cloud, in favor of what has always worked in the past", according to Microsoft's Le.

"Being able to prove ad value beyond a shadow of a doubt requires a contiguous view of the customer," said Le. "It's possible right now in the cloud. Like assembling Lego pieces, it's a matter of putting them all together to make this seemingly impossible task possible."

Marketplace conditions are ripe to compel the advertising industry to take part in a conversation about the value (ROI) of traditional advertising. These types of discussions could lead to an increase of performance-based advertising contracts that specify advertisers only pay for ads when the ads demonstrate results. To make models like this work, agencies will need inside insight into the metrics of advertisers, according to Bangah. If performance-based models resonate with advertisers, agencies will have the potential to enter into a co-creative relationship with advertisers — one that positions them as trusted advisors.

The pressure for traditional advertisers to innovate wouldn't stop even if things went back to normal tomorrow, according to Bangah. Digital advertisers already have a massive head start on demonstrating ad value. Now, they are pulling ahead even further with forays into sponsored e-commerce and voice-based ads. Traditional advertisers need to sprint to catch up.



Understanding customer sentiments can spike sales and reduce costs

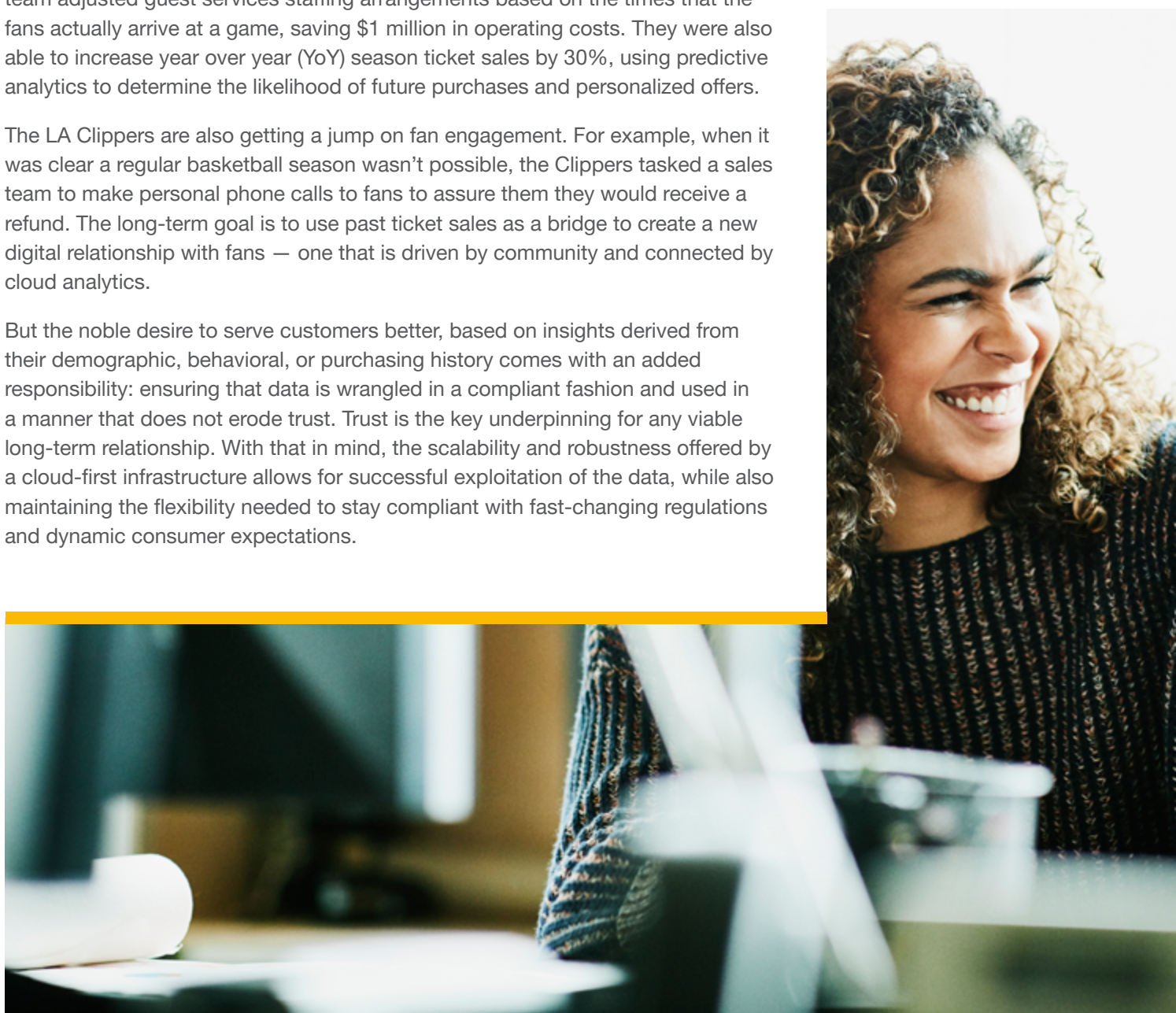
The advertising industry can learn a lot about understanding customer motivations from sports. Athletes feed off the energy of the crowds to perform. Sports teams know how important it is to have a connection with their fans, and they've been among the first to use data to deepen those relationships.

For example, the Miami HEAT can predict ticket sales, food and beverage purchases and staffing needs using real-time analysis of consumer data. The team adjusted guest services staffing arrangements based on the times that the fans actually arrive at a game, saving \$1 million in operating costs. They were also able to increase year over year (YoY) season ticket sales by 30%, using predictive analytics to determine the likelihood of future purchases and personalized offers.

The LA Clippers are also getting a jump on fan engagement. For example, when it was clear a regular basketball season wasn't possible, the Clippers tasked a sales team to make personal phone calls to fans to assure them they would receive a refund. The long-term goal is to use past ticket sales as a bridge to create a new digital relationship with fans — one that is driven by community and connected by cloud analytics.

But the noble desire to serve customers better, based on insights derived from their demographic, behavioral, or purchasing history comes with an added responsibility: ensuring that data is wrangled in a compliant fashion and used in a manner that does not erode trust. Trust is the key underpinning for any viable long-term relationship. With that in mind, the scalability and robustness offered by a cloud-first infrastructure allows for successful exploitation of the data, while also maintaining the flexibility needed to stay compliant with fast-changing regulations and dynamic consumer expectations.

Miami HEAT boosts season ticket sales by 30% and saves approximately \$1 million on operations using Microsoft Azure to gain a 360-degree view of customers and operations



Conclusion

The industry has reached a point of no return — there is no going back to the days of denying digital's importance. The impacts of social distancing are reverberating across the media and entertainment supply chain and every aspect of the industry is ripe for digital transformation. The constraints created by COVID-19 are catalyzing a new way of doing things that are shaping a promising future for the industry.

The M&E industry needs to tap the power of the cloud to create a centralized, secure, and seamless staging area to maintain business continuity, improve operational efficiency, and lock in customer loyalty. However, businesses need to realize that making this transition isn't simply a matter of throwing existing systems into the cloud. Firms have to adjust their operations and mindsets to new ways of doing things.

Adapting to the new normal is going to be a major challenge for the industry, but meeting that challenge is a must — not only to survive now but also to thrive in a coming 5G future. To take advantage of tomorrow's innovation, companies need to start planning today.

Take the next step

PwC's Microsoft Alliance is helping media and entertainment companies usher in a new future of creativity, content, and experiences. To learn more, visit PwC's [Microsoft Alliance page](#). Also [read](#) about how Microsoft is enabling media and entertainment companies to leverage the Azure cloud.

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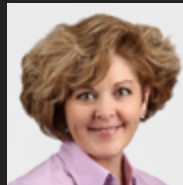


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